FACTORS INFLUENCING THE IMPLEMENTATION OF INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS IN THE AREA MILITARY HEALTH UNIT GAUTENG AND 1 MILITARY HOSPITAL IN TSHWANE GAUTENG

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DECLARATION

By submitting this thesis electronically, I, **Anna Christina Maria Cilliers**, declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third-party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: April 2019

ABSTRACT

The fourth Millennium Development Goal aimed to reduce the global under-five mortality rate. In line with this aim, the South African Military Health Nursing College included the Integrated Management of Childhood Illness (IMCI) approach in all nursing training. However, the researcher observed that the majority of military staff members were not utilising the IMCI approach. It was therefore deemed necessary to conduct this study to identify and describe the factors influencing the successful implementation of IMCI in the Area Military Health Unit of Gauteng and 1 Military Hospital in Tshwane, South Africa.

The objectives for the study were to identify and describe the organisational (structure) factors influencing the successful implementation of IMCI, the case management skills (process) of health workers influencing the successful implementation of IMCI and the benefits (outcomes) when utilising the IMCI approach.

The conceptual and theoretical departure of this study was based on the Donabedian structure-process-outcomes model for the assessment of quality in healthcare. A quantitative, non-experimental and descriptive design was applied in this study. The target population of 135 participants included an all-inclusive sample of all the Medical Practitioners, Registered Nurses and Clinical Associates, working in the 14 selected clinics. The data-collection instrument was a self-administered questionnaire, consisting of 63 closed-ended questions and one open-ended question. The questions were structured according to a four-point Likert scale. A pilot test was conducted before the main study, and these results were excluded from the main study. One hundred and thirty-five questionnaires were distributed and a response rate of 78% was achieved. A statistician of Stellenbosch University conducted the analysis and interpretation of the data with the SPSS software program. Descriptive statistical analysis was applied.

The results revealed that the main factors influencing the implementation of IMCI is lack of follow-up training, not enough IMCI-trained staff, no supervisory support, unavailability of IMCI wall charts and staff not utilising standardised IMCI checklists.

The researcher recommends that all supervisors attend IMCI training and that training be extended to include other categories of healthcare workers, such as medical practitioners and clinical associates. Furthermore, continuous monitoring, evaluation and supervisory support should be reflected in monthly reports. Lastly, follow-up training, workshops, symposiums and refresher courses on IMCI should be offered.

Keywords: Factors, influencing, barriers, implementation, Integrated Management of Childhood Illness

OPSOMMING

Die vierde Millenniumontwikkelingsdoelwit was daarop gemik om die globale sterftesyfer van kinders onder vyf jaar te verlaag. In ooreenstemming met hierdie doelwit sluit die Suid-Afrikaanse Militêre Verpleegkollege die Geïntegreerde Bestuur van Kindersiektes (IMCI) by alle verpleegonderwys in. Die navorser het egter waargeneem dat die meerderheid militêre personeellede nie die IMCI-benadering gebruik nie. Die belang van die studie was dus duidelik ten einde die faktore te identifiseer en beskryf wat die suksesvolle implementering van IMCI in die Area Militêre Gesondheidseenheid van Gauteng en 1 Militêre Hospitaal in Tshwane, Suid-Afrika, beïnvloed.

Die doelstellings van die studie was die identifisering en beskrywing van die organisasiefaktore (struktuur) wat die suksesvolle implementering van IMCI beïnvloed, die gevallebestuursvaardighede (proses) van gesondheidswerkers wat die suksesvolle implementering van IMCI beïnvloed en die voordele (uitkomste) van gebruik van die IMCI-benadering.

Die konseptuele en teoretiese vertrekpunt van hierdie studie is gegrond op die Donabediaanse struktuur-proses-uitkomstemodel vir die assessering van gehalte in gesondheidsorg. 'n Kwantitatiewe, nie-eksperimentele en beskrywende ontwerp is in die studie toegepas. Die teikenpopulasie van een honderd vyf en dertig deelnemers het 'n inklusiewe steekproef van al die mediese praktisyns, profesionele verpleegkundiges en kliniese medewerkers, in die 14 gekoste klinieke ingesluit. Die data-insamelingsinstrument was 'n selftoegediende vraelys wat uit 63 geslote en een oop vraag bestaan het. Die vrae is volgens 'n vierpunt-Likertskaal gestruktureer. 'n Loodstoets is voor die hoofstudie uitgevoer, en hierdie resultate het nie deel van die hoofstudie gevorm nie. Een honderd vyf en dertig vraelyste is uitgestuur en 'n responskoers van 78% is behaal. 'n Statistikus van die Universiteit Stellenbosch het die data met die SPSS-sagtewareprogram ontleed en geïnterpreteer. Beskrywende statistiese analise was toegepas. Die resultate het getoon dat die hooffaktore wat die implementering van IMCI beïnvloed gebrek aan opvolgopleiding, tekort aan IMCI-opgeleide personeel, geen toesighoudende ondersteuning, onbeskikbaarheid van IMCI-muurkaarte en gebrek aan benutting van gestandaardiseerde IMCI-kontrolelyste is.

Die navorser beveel aan dat alle toesighouers IMCI-opleiding ondergaan en dat opleiding uitgebrei word om ander kategorieë gesondheidsorgwerkers, soos mediese praktisyns en kliniese medewerkers, in te sluit. Voorts moet deurlopende monitering, evaluering en toesighoudende ondersteuning in maandelikse verslae weerspieël word. Laastens word

aanbeveel dat opvolgopleiding, werkswinkels, simposia en opknappingskursusse oor IMCI aangebied word.

Sleutelwoorde: Faktore, verhinder, hindernisse, implementering, Geintegreerde Bestuur van Kindersiektes.

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ACRONYMS

AIDS	Acquired immune deficiency syndrome
AMHU GT	Area Military Health Unit Gauteng
CAFOD	Catholic Development Agency for England and Wales
DOD	Department of Defence
DOH	Department of Health
EDL	Essential drug list
EML	Essential Medicine list
GOPD	General Out Patient Department
Hb	Haemoglobin
HIV	Human immunodeficiency virus
HPCSA	Health Professions Council of South Africa
ICDM	International Code of Disease Management
IMCI	Integrated Management of Childhood Illness
KZN	KwaZulu-Natal
MDGs	Millennium Development Goals
ORS	Oral rehydration solution
PHC	Primary healthcare
RSA	Republic of South Africa
RTHBs	Road to Health Booklets
SAMHS	South African Military Health Services
SANDF	South African National Defence Force
SOAP	Subjective, Objective, Assessment and Plan
SPO	Structure-process-outcomes
TB	Tuberculosis
UNICEF	United Nations International Children’s Emergency Fund
WHO	World Health Organization

CHAPTER 1:
FOUNDATION OF THE STUDY

1.1 INTRODUCTION

The fourth Millennium Development Goal (MDG) aimed to reduce the under-five mortality rate by two-thirds between 1990 and 2015. To build on the successes of the past 15 years, a new set of goals were developed in 2015, namely the Sustainable Development Goals. The Catholic Development Agency for England and Wales (CAFOD) stated that the Sustainable Development Goals aim to end poverty and hunger by 2030. Sustainable Development Goal 3 prioritises health and well-being to ensure healthy lives and promote well-being for all (CAFOD, 2015:2–3).

Although there had been a 47% decline in the global under-five mortality rate by 2012, the current rate in South Africa of 48 deaths per 1 000 live births is still unacceptably high" (Rhode & Mash, 2015:100). "Globally, the Integrated Management of Childhood Illness (IMCI) approach has shown to lower the under-five mortality rate" (Bothma, Greeff & Mulaudzi, 2015:89). IMCI is an integrated approach to child health that focuses on the well-being of the whole child. IMCI aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. According to the World Health Organization (WHO) IMCI includes both preventive and curative elements that are implemented by families and communities as well as by health facilities (WHO,2007:8)

. The purpose of this study was to identify the factors influencing the successful implementation of IMCI in the Area Military Health Unit Gauteng (AMHU GT) and 1 Military Hospital, South Africa.

1.2 SIGNIFICANCE OF THE PROBLEM

Understanding the factors influencing non-adherence to IMCI guidelines in the AMHU GT and 1 Military Hospital could enhance strategies to improve IMCI implementation in the AMHU GT and 1 Military Hospital. The Saving Children Report (2010–2011), "identified failure to follow IMCI assessment and treatment guidelines and failure to recognise the severity of illness as modifiable factors responsible for the deaths of children under five years in South Africa" (Chopra, Mason, Borrazzo Campbell, Rudan, Liu, Black & Bhutta, 2013:1504).

1.3 RATIONALE FOR THE STUDY

The following section provides a short overview of the current status regarding IMCI globally, in Africa, South Africa and the South African Military Health Services (SAMHS), the context of this study.

The "IMCI strategy was developed by the WHO and the United Nations International Children's Emergency Fund (UNICEF) to reduce child mortality and enhance child growth and development" (Adekanye & Odetola, 2014:33).

The WHO reports that infant and child mortality remains high in developing countries, where 5.6 million children under the age of five years died during 2016, in other words 15 000 under-five deaths per day (WHO, 2017:1).

According to the WHO, health system factors, health worker skills and community/family factors are regarded as essential components for the implementation of IMCI (WHO, 2007:8). The health system is responsible for the organisation and overall functioning to provide efficient, good-quality care to children. Whereas the health worker component aims to improve performance when tending to children under five and their families, the family and community component aim to improve family and community members' knowledge about best practices for the care of children up to the age of five years at home and in the community (WHO, 2007:8).

1.3.1 Global context

Globally, the IMCI approach has proven to have various benefits for the healthcare system, healthcare staff, families and the community. Benefits comprise reduction in the under-five mortality rate and augmenting of the nutritional status of children. Furthermore, "IMCI is associated with improving the knowledge and satisfaction of caregivers, enhancing the skills/performance of healthcare providers, improving the quality of care and reducing the financial burden on the healthcare system". In addition, "IMCI discourages the misuse of antibiotics and other medicine and provides assistance with the diagnosis and management of the human immunodeficiency virus (HIV") (Shrivastava, Shrivastava & Ramasamy, 2013:187).

1.3.2 African context

UNICEF reports that during 2010 in Tanzania, approximately 7.6 million children died before reaching their fifth birthday (Kiplagat, Musto, Mwizamholya & Morona, 2014:277). Ahmed, Mitchell and Hedt (2010:128) confirm the various benefits of the implementation of IMCI in

health service quality, mortality reduction and healthcare cost savings in Uganda, Tanzania, Bangladesh, Brazil, Peru, South Africa, China, America, Nigeria and Morocco.

1.3.3 South African contex

"South Africa adopted IMCI in 1997 and was one of over 100 developing countries to do so" (Horwood, Voce, Vermaak, Rollins & Qazi, 2009:1). "Despite South Africa adopting the IMCI strategy, 47 417 children under five years old died in 2010 from mainly neonatal conditions, pneumonia, diarrhoea, HIV and malnutrition" (Mulaudzi, 2015:89). A study done by Chopra *et al*. (2013:1499) showed that "although the guidelines are used, they are not implemented correctly or completely". Mulaudzi (2015:89) emphasises that the patient's condition should be classified, and treatment administered. The case management guidelines of IMCI use algorithms of specific symptoms and clinical signs. This approach will ensure standardised care to every child. In South Africa, registered nurses working in primary healthcare (PHC) clinics should be IMCI-trained (Horwood *et al*., 2009:62).

The Constitution of the Republic of South Africa Second Amendment, Act No. 3 of 2003 (RSA, 2003:1255) states that the primary consideration in action concerning children should be the best interest of the child and that survival is the most basic right of a child.

Although diarrhoeal disease, pneumonia and malnutrition remain important causes of mortality, HIV and/or acquired immune deficiency syndrome (AIDS) is in South Africa the most common cause of death in children under the age of five years (Horwood et al., 2009:62). According to Ahmed *et al*. (2010:129), approximately nine million children die of preventable and treatable conditions every year in developing countries.

Cheema, Stephan and Westwood (2013:43) highlight that in South Africa, children are still seen in order of arrival instead of being triaged to ensure that the sickest children are prioritised. Cheema *et al*. (2013:43) are convinced that the algorithmic approach of IMCI has proven benefits for the care of sick children.

1.3.4 SAMHS context

Kiplagat *et al*. (2014:1) report that IMCI guidelines are not always fully adhered to by healthcare workers in Tanzania. The researcher can relate to this non-adherence, as she has observed that staff in Gauteng and the North West province in the SAMHS do not always comply with the IMCI guidelines. Children in the clinics are treated with the same approach as adults and not according to the IMCI guidelines.

It is therefore clear that the IMCI strategy has various benefits, yet it is not always correctly implemented. Currently, there no published literature, previous research or guidelines on the implementation of IMCI in the SAMHS are available. Based on the aforementioned, the research problem is described in the following section.

1.4 PROBLEM STATEMENT

The researcher is a nurse educator in the SAMHS, where Registered nurses and Medical practitioners have received training in IMCI since 2009. IMCI is included in the following SAMHS training curriculums: The Education and Training of a Nurse (General, Psychiatric and Community) and Midwife (R425) (RSA, 1988); the Diploma in Clinical Nursing Science, Health Assessment, Treatment and Care (R48) (RSA, 1997a); and the Diploma in Midwifery (R254) (RSA, 1997b).

However, when visiting various clinics, the researcher observed that the majority of staff members were not utilising the IMCI approach. In the North West province, all three clinics used the IMCI approach, while in Gauteng, where there are 14 clinics, only two adhered to the IMCI guidelines. Students also gave feedback that they experienced trouble in reaching the clinical objectives of IMCI, as the staff in the clinics did not support them in assessing children according to the IMCI approach.

It was therefore critical to scientifically investigate the factors influencing the successful implementation of IMCI in the AMHU GT and 1 Military Hospital, which, if successfully implemented, could assist the SAMHS to comply with the standards set by the WHO to reduce child mortality.

1.5 RESEARCH QUESTION

The research question that guided this study was: What are the factors influencing the successful implementation of IMCI in the AMHU GT and 1 Military Hospital in Tshwane, South Africa?

1.6 RESEARCH AIM

The aim of the study was to identify and describe the factors influencing the successful implementation of IMCI in the AMHU GT and 1 Military Hospital in Tshwane as perceived by health workers.

1.7 RESEARCH OBJECTIVES

The objectives for the study were to identify and describe the:

- organisational (structure) factors influencing the successful implementation of IMCI;

- case management skills (process) of health workers influencing the successful implementation of IMCI; and
- benefits (outcomes) when utilising the IMCI approach.

1.8 CONCEPTUAL FRAMEWORK

The conceptual and theoretical departure of this study was based on the Donabedian framework for the assessment of quality in healthcare (see Figure 1.1). Donabedian's structure-process-outcomes (SPO) model (Donabedian, 1997:1145) is outlined below:

- Structure: All the factors affecting the context in which care is delivered, for example physical facility, equipment, human resources, budget and training. This involves assessing the adequacy of facilities, equipment and administrative process and the quality and quantity of health personnel in terms of their training.
- Process: The way care is delivered, for example diagnosis, treatment and preventive care. It pertains to the cooperation between all staff members involved in the execution of the programme.
- Outcomes: Effect of healthcare. It is related to the outcomes of each facet of the personnel development programme, person's current and future status.

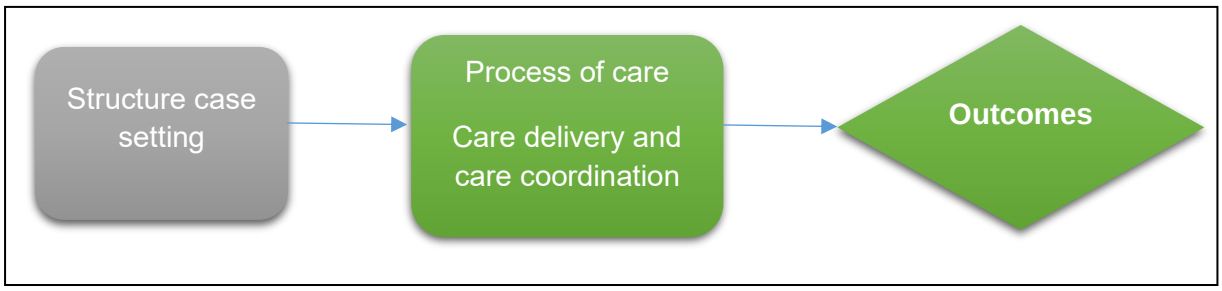

Figure 1.1: Donabedian's structure-process-outcomes model

(Donabedian, 1997:1145)

A detailed discussion of the conceptual framework is provided in Chapter 2 (Section 2.4). The sections below provide a short overview of the methodology applied for this study. Chapter 3 provides a detailed description of the research methodology.

1.9 RESEARCH METHODOLOGY

A description of the design, setting, population and sampling, inclusion and exclusion criteria, data-collection instrument, pilot test, reliability and validity of the study, data collection and data analysis is provided below.

1.9.1 Research design

A quantitative, non-experimental and descriptive design was applied to identify and describe the factors influencing the successful implementation of IMCI in the AMHU GT and 1 Military Hospital in Tshwane as perceived by health workers.

1.9.2 Study setting

The study setting for this study was the paediatric outpatient department of 1 Military Hospital and the PHC clinics in the SAMHS of Gauteng province (Tshwane as well as the East and West Rand of Johannesburg) rendering PHC services to staff members and their dependants.

1.9.3 Population and sampling

The target population (N = 135; n=105) included health care workers which consisted of medical practitioners (n=25), registered nurses (n=65) and clinical associates (n = 45), working in 14 clinics in the AMHU GT as well as 1 Military Hospital. Because of the small numbers, an all-inclusive sample was utilised.

1.9.4 Inclusion and exclusion criteria

The inclusion criteria were that participants had to be on duty during the period of data collection and had to be either a medical practitioner, registered nurse or a clinical associate. Staff members on deployment, on maternity leave or those not willing to participate were excluded from the study. Participants should be English literated.

1.9.5 Data-collection instrument

A structured, self-administered questionnaire based on the objectives of the study, which included demographic data, organisational factors, case management skills and IMCI benefits, was developed for data collection. The compilation of the questionnaire was done in consultation with the researcher's study supervisor and a statistician. The instrument consisted of a combination of newly developed questions as well as questions adjusted from a study conducted in Botswana by Mupara (2013).

1.9.6 Pilot test

The questionnaire was pilot-tested before the main study. The questionnaire was tested on 10% of the target population. The pilot test assisted in identifying problems relating to the methods of data collection, reliability and validity and provided an indication of how long it would take to complete the questionnaire. The questionnaire was pretested on registered nurses (n = 15) not included in the study. Minor grammar and spelling mistakes were corrected. Although the initial questionnaire was not change four additional questions were

included. These questions included information regarding the length of the training, supervisory support, IMCI wall charts and clinic space.

1.9.7 Validity and reliability

Validity and reliability are closely related (Brink, Van der Walt & Van Rensburg, 2013:171).

Validity is the degree in which an instrument measure what it is intended to measure (Creswell, Ebersöhn, Eloff, Ferreira, Ivankova, Jansen, Nieuwenhuis, Pieterson, Plano Clark, & Van der Westhuizen, C. 2014: 216). According to Cresswell et al., (2014:217) face validity is the extent to which an instrument "looks" valid and content validity refers to the extent to which the instrument covers the content that is set out to measure.

Face and content validity were assured through the reviews of experts in IMCI implementation and SAMHS members utilising IMCI in clinics and 1 Military Hospital. Input from the statistician and study supervisor as well as the pilot test further ensured validity.

The pilot test also ensured the reliability of the study. The pilot test was conducted under similar conditions as the actual study. The researcher personally collected the data by utilising a structured questionnaire.

1.9.8 Data collection

The researcher was responsible for the data collection with the use of a structured questionnaire (see Appendix 5) at the paediatric outpatient department of 1 Military Hospital and the PHC clinics in the SAMHS of Gauteng province (Tshwane as well as the East and West Rand of Johannesburg) rendering PHC services to staff members and their dependants.

1.9.9 Data analysis

A statistician of Stellenbosch University analysed the data. Data were analysed according to frequencies and percentages and are presented in frequency tables, bar and pie diagrams, histograms and percentages. No other test was done, as the study was purely descriptive.

1.10 ETHICAL CONSIDERATIONS

To ensure human dignity, the researcher obtained approval from the Health Research Ethics Committee of Stellenbosch University.

Following the Ethical approval from Stellenbosch University (S16/08/144) (Annexure 1), ethical approval was also obtained from the Defence Intelligence (Annexure 2). Approval from 1 Military Hospital (SAMHS Ethics Committee) (Appendix 3). The researcher abided by the ethics statement once the study proposal had been approved by the ethics committees.

Furthermore, permission to conduct the study at the specific clinics in Gauteng was obtained from the clinic managers concerned, and a clear statement of the purpose, procedure, risk and benefits of the research project was discussed before consent (Appendix 4) to participate was obtained from the participants.

In this study, the researcher acknowledged the importance to adhere to ethical principles, as human beings were the participants. The human rights that require protection in research are the following (Gray, Grove & Sutherland 2017:163):

- The right to self-determination
- The right to privacy
- The right to anonymity and confidentiality
- The right to fair treatment and justice
- The right to protection from discomfort and harm.

1.10.1 Right to self-determination

The right to self-determination is based on the principle of respect for persons (Gray *et al*., 2017:162). Polit and Beck (2008:171) state that respect for human dignity involves the right to self-determination and the right to full disclosure. To ensure human dignity, the following was applied:

Participation was voluntary, and the participants were free to decline to participate without any negative consequences whatsoever. The participants were free to withdraw from the study at any point, even after having agreed to take part. Because the participants had the right to decide voluntarily whether or not to participate in the study without any risk of penalty or prejudicial treatment, the principle of respect for human dignity was adhered to.

1.10.2 Right to privacy

Gray *et al.* (2017:168) state that “privacy is an individual’s right to determine the time, extent and general circumstances under which personal information is shared”. No names, telephone numbers or any other identifying information was required.

1.10.3 Right to confidentiality and anonymity

Informed written consent was obtained from each participant. The signed written consent forms were confidential. No names of clinics or participants were included in the information. To ensure confidentiality and anonymity, the participants did not write their names or the name of the clinic on the questionnaires. The consent documents were handled separately from the questionnaires. All data were handled by the researcher and clinic managers and statistician only.

1.10.4 Right to fair treatment

According to Polit and Beck (2008:173), "justice involves the participants' right to fair treatment and privacy". Appropriate selection took place, as the researcher did not choose the participants, but included everybody who was on duty on the days of data collection. Confidentiality regarding the collection of data and the publication of results was ensured. The researcher adhered to all the ethical considerations regarding this study (see Brink et al., 2013:32–51).

1.10.5 Right to protection from discomfort and harm

"The right to protection from discomfort and harm is based on the ethical principle of beneficence, which dictates that one does good and that the most important consideration is not to harm" (Burns & Grove, 2011:98). The principle of beneficence involves an effort to secure the well-being of participants. Participants should be protected from discomfort and harm. As the information gathered in the study was not sensitive in nature, minimal risk had been foreseen for the survey.

1.11 OPERATIONAL DEFINITIONS

The following concepts are central to this study and are defined as follows:

Integrated Management of Childhood Illness

"IMCI is the internationally recommended clinical approach to PHC for children under the age of five years" (WHO, 2013:1). When assessing a sick child according to the standardised guideline, a combination of individual signs leads to one or more classifications, rather than to a diagnosis. "IMCI classifications are action oriented and allow a health care provider to determine if a child should be urgently referred to another health facility, if the child can be treated at the first-level facility or if the child can be safely managed at home. IMCI is a strategy to improve child health" (WHO, 2004:1).

Registered nurse

A registered nurse is a person registered with the South African Nursing Council as a nurse under Section 31(1) of the Nursing Act No. 33 of 2005, as amended (RSA, 2005:5). Section 31(1) indicates that a person may only practise as a Registered nurse, midwife, staff nurse, auxiliary nurse or auxiliary midwife when registered in one of these categories (RSA, 2005:25).

Child mortality

The *Collins Paperback Dictionary* (2009:510) defines mortality as "the condition of being mortal or susceptible to death. For this study, child mortality refers to the death of infants and children under the age of five years".

Implementation

According to the *Oxford Advanced Learner's Dictionary* (2011:696), implementation is the "realisation of an application or the execution of a plan". For this research, implementation means the application of the guidelines and procedures laid out by the IMCI strategy.

Child

The child in the context of this study refers to a child under the age of five years.

Community

"Community refers to a group of people living in the same place or having a characteristic in common" (Miller-Keane, 2003:1). In this study, the community refers to the selected PHC clinics (internal environment) and the surrounding residential areas (external environment) of the AMHU GT.

Nursing

According to the International Nurses Council, 2nursing is an integral part of the healthcare system and encompasses the promotion of health, prevention of illness and care of physically ill, mentally ill and disabled people of all ages, in all healthcare and other community settings" (WHO,1948:4). For this study, IMCI nursing denotes the managing of the leading causes of serious illness and mortality (e.g. pneumonia, diarrhoea, malaria, measles and malnutrition) in children under five years of age according to set guidelines (WHO, 2007:8).

Health

The WHO defines health as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948:2). Health in the context of this study refers to a child under the age of five years with no symptoms of the conditions (e.g. pneumonia, measles and anaemia) that cause illness and death (WHO, 2007:35).

Clinical associate

"Due to the shortage of healthcare workers in South Africa, there was a need to train a new kind of health professional. Several universities started to train clinical associates as of 2009". The National Minister of Health, Dr Aaron Motsoaledi describes these professionals as "competent, professional members of the public healthcare sector. They have the necessary knowledge, skills, and attitudes to function effectively in the district health system, primarily

working under the supervision of qualified medical practitioners, to assist with emergency care, procedures, and inpatient care" (Doherty, Conco, Couper and Fonn 2013:1)

Medical practitioner

Medical practitioner is a person who is skilled in the science of medicine - a doctor (Miller-Keane, 2003:1)

1.12 DURATION OF THE STUDY

Ethical approval from the ethics committee of the university was obtained on 15 September 2016. Permission to conduct research in the Department of Defence (DOD) was only received on 25 November 2016 and permission to utilise 1 Military Hospital and AMHU GT was obtained on 1 December 2016. Appointments were made with the head of all departments and the researcher discussed the project with them during January and February 2017. Data collection was done between March and May 2017. The data analysis was received back from the statistician of the university on 12 June 2017. The final thesis was submitted in December 2018.

1.13 CHAPTER OUTLINE

The thesis outline is as follows:

- **Chapter 1: Foundation of the study.** In this chapter, a brief introduction, rationale for the study, objectives and a brief overview of the methodology as applied for this study, including the ethical considerations, were provided.
- **Chapter 2: Literature review.** In this chapter a literature review related to IMCI and the conceptual framework are discussed.
- **Chapter 3: Research methodology.** In this chapter a more in-depth description of the research methodology is given.
- **Chapter 4: Results.** In this chapter the study results interpretations and discussions are presented.
- **Chapter 5: Discussion, conclusions and recommendations.** This chapter provides the discussions, conclusions and the recommendations based on the scientific evidence obtained in this study.

1.14 SIGNIFICANCE OF THE STUDY

Successful implementation of the IMCI strategy in SAMHS clinics will ensure rational prescribing and early identification of HIV in children under five years of age.

1.15 SUMMARY

In this chapter, the following were discussed: the significance of the problem, the rationale for the study, the problem statement, the research question, the research aim, the conceptual framework based on the Donabedian's conceptual framework, the research methodology, ethical considerations, operational definitions and the significance of the study.

1.16 CONCLUSION

The IMCI programme is a symptom-based approach providing guidelines on classifying and managing common health conditions in children under the age of five years. The researcher observed that SAMHS staff did not fully adhere to the IMCI guidelines.

The IMCI programme prioritises the following common health conditions: diarrhoea, malaria, malnutrition, pneumonia, meningitis, tuberculosis (TB) and HIV. The aim of the IMCI strategy is to reduce mortality and improve the nutritional status and health status of all children under the age of five.

All the children of staff members working for the DOD under the age of five must be managed according to the IMCI approach. It is therefore important to identify and describe the factors influencing the implementation of IMCI by IMCI-trained nurses in Gauteng to rectify the non-adherence to the guidelines. The literature review is discussed in Chapter 2.

CHAPTER 2:
LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the relevant literature on factors influencing the implementation of IMCI. According to Gray et al. (2017:120), “the literature review is an interpretative, organised and written presentation” of what the study’s author has read.

“In quantitative research, the purpose of the literature review is to direct the planning and execution of the study”. The initial literature review was done at the beginning of the study, while at the end a further limited review was done to identify and integrate all relevant sources published since the initial literature review (see Brink et al., 2013:71–72).

2.2 REVIEWING AND PRESENTING THE LITERATURE

Literature published between 2007 and 2018 was reviewed, and the researcher explored relevant studies that have been conducted nationally and internationally regarding the factors influencing the successful implementation of IMCI. The researcher could not find any related studies conducted in the SAMHS.

The researcher conducted extensive electronic searches of the literature using search engines such as EBSCO Host, CINAHL, Science Direct and Google Scholar. The search terms that revealed a vast number of articles used in different combinations were ‘IMCI implementation’, ‘child health’, ‘barriers’ and ‘factors’. Relevant articles were identified and are cited throughout this chapter.

2.3 EMPIRICAL FINDINGS

The empirical findings are discussed under the following headings: Background to IMCI, organisational factors (structure), case management factors (process) and benefits (outcomes) of IMCI.

2.3.1 Background to IMCI

“IMCI is a comprehensive approach to child health and was presented by the WHO and UNICEF in 1996 as the principal strategy to improve child health” (Woods, 2010:28). “IMCI aims to improve the case management skills of first-level health workers, strengthen the health system for effective management of sick children and promote good family and community practices” (Horwood *et al*., 2009:2). “IMCI constitutes the internationally accepted standard for managing common conditions among children in PHC settings” (WHO, 2008:9).

“In 2000, 189 countries of the world came together to face the future. Leaders from these counties created a plan called the MDGs” (CAFOD, 2015:4). MDG 4 aimed to reduce the under-five mortality rate by two-thirds between 2000 and 2015. However, “despite all efforts, children are still dying from preventable diseases” (Mupara & Lubbe, 2016:9). “Although there had been a 47% decline in the global under-five mortality rate by 2012, the rate in South Africa of 48 deaths per 1 000 live births is still unacceptably high” (Rhode & Mash, 2015:100). According to a study done in Indonesia in 2012, “400 children under the age of five years die every day due to preventable causes, which include pneumonia, diarrhoea, malaria, measles, malnutrition or a combination of these” (Titaley, Justri, Ariawan, Soeharno, Setiawan & Weber, 2014:161). According to Titaley *et al*. (2014:161), 2low community awareness regarding the importance of IMCI contributes to the factors for not fully implementing IMCI in Indonesia”.

“Although diarrhoeal disease, pneumonia and malnutrition remain important causes of mortality, HIV and/or AIDS is the most common cause of death in children under the age of five years” (Horwood *et al*., 2009:1. According to Ahmed *et al*. (2010:129), “approximately nine million children die of preventable and treatable conditions every year in developing countries”. Although reducing under-five mortality rates is a global priority, “under-five mortalities is still unacceptably high in South Africa. IMCI claims to reduce death, illness and disability and promote improved growth and development in children under the age of five years (Rhode & Mash, 2015:100). The South African experiences echoes many of the international challenges. Although “there are over 10 000 IMCI-trained healthcare workers in South Africa, the availability of skilled clinicians to provide PHC remains challenging due to the rotation of staff, high staff turnover and inadequate staff numbers” (Fick, 2017:209). According to the findings of Pillay (2012:81–89), IMCI is not fully implemented in clinics in the province of KwaZulu-Natal (KZN). Institutional support, nurses’ attitude and parents’ or guardians’ compliance furthermore influences the implementation of IMCI in Nigeria (Adekanye & Odetola, 2014:33).

According to the WHO, health system factors, health worker skills and community/family factors are regarded as essential components for the implementation of IMCI (WHO, 2007:8). The health system is responsible for the organisational factors to provide efficient, good-quality care to children. The health worker component should have the necessary case management skills when tending to children under five and their families. The family and community component aim to improve family and community members’ knowledge about best practices for the care of children up to the age of five years at home and in the community (WHO, 2007:8).

UNICEF reports that during 2010, approximately 7.6 million children died before reaching their fifth birthday (Kiplagat *et al*., 2014:277). According to the WHO and UNICEF (1999:3), the IMCI strategy promotes the accurate identification of childhood illnesses, ensures appropriate combined treatment of all major illnesses, strengthens the counselling of caretakers and the provision of preventive services, and expedites the referral of severely ill children. The strategy aims to improve the quality of care of sick children at the referral level. In the home setting, it promotes appropriate care-seeking behaviours, improved nutrition, preventive care and the correct implementation of prescribed care.

"South Africa adopted IMCI in 1997 and was one of over 100 developing countries to do so" (Horwood *et al*., 2009:1). "Despite South Africa adopting the IMCI strategy, 47 417 children under five years old died in 2010 from mainly neonatal conditions, pneumonia, diarrhoea, HIV and malnutrition" (Mulaudzi, 2015:89). In an evaluation of the quality of IMCI assessments among IMCI-trained health workers in South Africa, Horwood *et al*. (2009:3) found that "although IMCI is being widely implemented in clinics in South Africa, IMCI assessment was not applied consistently and comprehensively". In South Africa, the "IMCI guidelines aim to assist PHC nurses in making an assessment and initiating management without the assistance of a doctor" (Rhode & Mash, 2015:100).

In a study on the disease profile of children under five years attending PHC clinics in a high HIV-prevalence setting in South Africa, it was found that serious illnesses, including emergency conditions and undiagnosed HIV infection, are common among children at PHC level. If adequate coverage is to be achieved, IMCI implementation needs to be improved (Horwood *et al*., 2010:42–52). According to Horwood *et al*. (2009:7), "the HIV component of IMCI is frequently not implemented in routine clinical practice. However, this may be an aspect of overall poor implementation of IMCI". Furthermore, it was found that "nurses are frequently unwilling to implement routine checks for HIV in children" (Horwood, Butler, Vermaak, Rollins, Haskins, Nkosi, Neilands & Qazi. 2010:313–320).

Kruger, Heinzel-Gutenbrunner and Ali (2017:8) conducted a study on the adherence to IMCI guidelines in Namibia, Kenya, Tanzania and Uganda. They "did not find a significant difference in performance between health workers who were trained in long (11 days) or short-lasting (5–7 days) IMCI courses. However, lack of any pre-service or in-service training was consistently identified as a risk factor for poor adherence". In Nigeria, institutional support, nurses' attitude and parents' or guardians' compliance furthermore negatively influenced the implementation of IMCI (Adekanye & Odetola, 2014:33).

"The IMCI strategy takes longer than an ordinary consultation, and with long queues of patients it is not possible to attend to all patients in the clinic when it is overcrowded by patients" (Pillay, 2012:81–89). Studies have revealed that frequently "health workers do not have the time to perform complete assessments due to the high numbers of patients and the overall workload" (Kruger *et al*., 2017:9). Furthermore, Kruger *et al*. (2017:10) found that "health workers are often not convinced that IMCI in itself is a valuable approach; sometimes they had low intrinsic motivation to follow the protocols or lacked the capacity to apply their knowledge to the respective patient". Mupara and Lubbe (2016:3) found in a study done in Botswana that "IMCI consultations are time-consuming and lead to longer patient-waiting queues. If the queues get too long, the non-IMCI-trained nurses take care of some children and as a result, IMCI is only partially implemented". Furthermore, they found that "non-IMCI-trained nurses take less time to consult because they use single-diagnosis approaches, which do not view the client holistically and do not consider health problems other than the reason for the visit. Because of the consultation taking less time, caregivers prefer to be seen by them" (Mupara & Lubbe, 2016:4).

2.3.2 Organisational factors (structure)

Strengthening health systems is one of the three key elements of the IMCI strategy to ensure universal access to service of high quality. Organisational factors refer to the *structures* that should be in place to render a quality service to children under five and include the following: policies and guidelines, staffing, training, budget, supervisory support, medicine, equipment, consumables and infrastructure. Each of these organisational factors is discussed in the following paragraphs.

2.3.2.1 Policies and guidelines

Training on how to use the guidelines enables health workers to recognise and treat childhood illness correctly and to help the family understand what needs to be done at home pertaining to specific feeding problems (WHO, 1998:4). At first-level health facilities, IMCI promotes improvement by providing guidelines for managing important child health problems and training health workers to use the guidelines effectively (WHO, 1999:4).

The case management guidelines of IMCI use algorithms of specific symptoms and clinical signs. This approach ensures standardised care to every child. Mulaudzi (2015:89) emphasises that the patient's condition should be classified, and treatment accordingly administered.

In a study conducted in Nigeria it was found that nurses find it very difficult to implement IMCI due to inadequate aids such as wall charts and chart booklets that contain a summary of the

information in the guidelines (Adekanye & Odetola, 2014:33). According to Mugala, Mutale, Kalesha and Sinyinza (2010:6) the lack of simplified wall charts in Zambia prevents health workers from adhering to the guidelines.

“IMCI standard case management guidelines provide a systematic approach to assessing, classifying and treating sick children from birth up to five years old, including giving appropriate counselling” (WHO, 2009:2).

Mulaudzi (2015:91) conducted a study on adherence to case management guidelines of IMCI in Tshwane and found that these “guidelines are not adhered to in the clinics before referral to the hospital”. Furthermore, it was found that “classification of the conditions was incomplete and incorrect” (Mulaudzi, 2015:91). It was also found in this study that besides incorrect and incomplete classification, very “few children had their nutritional and HIV status assessed, and treatment was not given according to guidelines” (Mulaudzi, 2015:92). Furthermore, Mulaudzi (2015) reports that the recommended pre-referral treatment was not always administered at the clinics and that the administration of vitamin A to children above 10 years after implementation of the IMCI, is still very low.

2.3.2.2 Staffing numbers and high turnover

Although Indonesia adapted the IMCI in 1996, a study in 2012 revealed that a “shortage of IMCI-trained healthcare workers was a severe challenge in implementing IMCI” (Titaley *et al*., 2014:161). Mugala *et al*. (2010:6) found that although health workers in Zambia did not find the HIV guidelines difficult to follow, barriers such as inadequate staffing prevented them from adhering to the guidelines. In another study done in Limpopo, PHC nurses experienced difficulties in rendering IMCI services (Vhuromu & Davhana-Maselesele, 2009:63). Challenges reported in this study include insufficient staff to render IMCI services, as the staff were also faced with other responsibilities, such as that of administration, supervision, control and assessment of staff and providing care for other clients with different health problems (Vhuromu & Davhana-Maselesele, 2009:64). Similarly, Pillay (2012:81–89) also highlights that staff shortages and insufficient IMCI-trained staff impact negatively on the implementation of IMCI strategy in KZN.

High turnover of healthcare workers was indicated as another factor that leads to shortage of staff. “It is common for IMCI-trained staff to leave their places of work for better opportunities in other districts or organisations” (Kiplagat *et al*., 2014:7). According to Fick (2017:211), South Africa has weak systems for monitoring and evaluating IMCI implementation. Moreover, Fick (2017:212) is of the opinion that “South Africa had some successes in the implementation of

IMCI; however, concern about the overall lack of impact indicates that the strategy should be reviewed".

2.3.2.3 Staff training

In a study on the knowledge of community workers about key family practices in a rural community in the West Coast of South Africa, it was found that "the knowledge of these healthcare workers was inadequate to provide safe, quality community integrated management of childhood illness" (Stellenberg, Van Zyl, & Eygelaar, 2015:1). Furthermore, Stellenberg *et al*. (2015:6) state that "to serve the community with appropriate knowledge and skills, regular monthly update courses could contribute to shaping competent community care workers". In another study conducted in Cape Town on missed opportunities in child healthcare, it was found that "South Africa has failed to reduce the maternal and under-five mortality rate" (Jacobs & Coetzee, 2015:917).

Most of the nurses in Nigeria became aware of the IMCI strategy during their training and gained knowledge in clinical practice. They were not sent for personal IMCI training by their organisation. These nurses believed that the IMCI strategy is very effective in the reduction of under-five mortalities and that implementing the IMCI guidelines would have a positive effect on their skill in paediatric management.

In a study conducted in Bulawayo it was found that "IMCI implementation is not up to standard". The study showed that "despite training of health workers, gaps and deficiencies existed that failed to meet the minimum requirements of the IMCI protocol" (Gombe, Mabaera, Tshimanga, Shambira, & Chadambuka, 2010:10).

"Despite nationwide training in IMCI, adherence rates for assessment and physical examination remain low in Namibia, Kenya, Tanzania and Uganda, especially among nurses, midwifes and auxiliary staff (Kruger *et al*., 2017:10).

In a study by Pillay (2012:81–89) in KZN it was found that the "IMCI-trained registered nurses could not assess, classify and treat sick children in line with the IMCI strategy".

2.3.2.4 Follow-up training and refresher courses

According to Goga and Muhe (2011:3), follow-up after training is an essential component of IMCI. In a multi-country survey done in 2011, the most common challenges were follow-up after training due to lack of funding for follow-up, inadequate funds for travel, and lack of fuel for travel. Furthermore, these authors report that due to inadequate budgets, follow-up visits are often delayed, resulting in no ongoing clinical supervision.

According to Kiplagat *et al*. (2014:4), “all the healthcare workers trained in Tanzania reported that they had never received IMCI refresher courses or follow-up visits since their original IMCI training”. Sixty-nine per cent of the healthcare workers who had received IMCI training felt that the training was not adequate and suggested that on-site mentoring and refresher courses were needed to complement the training received.

Kalu, Lufesi, Havens and Mortimer (2016:5) found in rural Malawi that “refresher training has been shown to improve the skills of health workers and is associated with a reduction in child mortality”.

2.3.2.5 Budget

In the multi-country survey done by Goga and Muhe (2011:4), “the most common challenges for all countries were inadequate funds for training and the mismatch between training needs and resources available”

According to Mupara and Lubbe (2016:4), low IMCI training coverage of registered nurses in Botswana poses a challenge, which is attributed to inadequate funding and the high cost of IMCI training courses.

2.3.2.6 Supervisory support

In Zambia, Mugala *et al*. (2010:6) found that “health workers do not adhere to IMCI guidelines due to barriers such as infrequent supervision”. In Indonesia, “lack of supervision contributes to poor implementation of IMCI” (Titaley *et al*., 2014:161). According to Pillay (2012:84), lack of support and supervision also influences the implementation of IMCI in KZN. In Botswana, lack of support from supervisors and colleagues is another challenge in the implementation of IMCI (Mupara & Lubbe, 2016:4). “Inadequately trained supervisors, an inadequate number of skilled supervisors, a shortage of PHC doctors, general staff shortages in health facilities and facilitators being overloaded were identified as common challenges in many countries” (Goga & Muhe, 2011:2–6).

In a study conducted by Horwood *et al*. (2009:62), the participants felt that “training was too short for acquiring skills in all areas of IMCI and they had no ongoing supervision, while regular supervision is needed to reinforce skills and improve performance”. Staff shortages was identified as the biggest barrier to IMCI implementation, and other complaints were that IMCI consultations take longer than other consultations, which result in longer waiting times, and the expectations of mothers to receive treatment that is no longer used according to the IMCI approach. Pillay (2012) also identified lack of follow-up visits and ongoing supervision as challenges.

Vhuromu and Davhana-Maselesele (2009:64) report the main complaint for not implementing IMCI in Limpopo is poor working conditions in general, symptoms and feelings of burnout, no support by supervisors and lack of sleep due to the expectation to continue to work normal hours directly after doing call after hours.

2.3.2.7 Medicine and supplies

According to the IMCI protocol, at each visit, growth, nutrition and immunisation should be assessed. Stellenberg *et al*. (2015:1–7) identified the following challenges that contribute to the high incidence of child mortality and morbidity: "shortage of staff, immunisation services not offered every day at clinics, hospitals and private hospitals not offering immunisation services, vitamin A administration and deworming not done at six-monthly intervals, children younger than 24 months not being assessed for weight and growth at each contact session and no nutrition advice given".

In clinics in KZN, due to the non-availability of specific IMCI medicine, facilities force members to treat children according to the essential drug list (EDL, which changed to the Essential Medicine List in 2014) (Pillay, 2012:81–89). In the Limpopo province, medicine that is very often out of stock made it very difficult to utilise the IMCI strategy (Vhuromu & Davhana-Maselesele, 2009:64). According to Adekanye and Odetola (2014: 33), nurses in Nigeria find it very difficult to implement IMCI due to the unavailability of IMCI emergency medicine. In Tanzania, shortage of essential medicine, especially for treating pneumonia, diarrhoea (oral rehydration solution [ORS]) and malaria, was also identified as a major challenge to IMCI implementation (Kiplagat *et al.*, 2014:5).

Furthermore, Goga and Muhe (2011:6) report that "in many countries, the medicine suggested by IMCI is not part of the medicine provided free of charge through the EML together with poor reading ability of some health workers contributed to the factors for poor implementation of IMCI". According to Titaley *et al*. (2014:161), the unavailability of medicine also contributes to the non-implementation of the IMCI strategy in Indonesia. In addition, Pillay (2012:88) found that the PHC approach impacts negatively on the effective implementation of the IMCI strategy, because mothers are not satisfied with health education or home remedies and demand tangible treatment in the form of medicine.

2.3.2.8 Infrastructure

The Registered nurses in KZN raised the point that they experience difficulties to implement the IMCI strategy due to the poor physical layout of facilities. Some clinics have only two consultation rooms available. In another study conducted in 2012 in the North West province by Maleshane (2012:39–68), very similar findings were reported. Likewise, Vhuromu and

Davhana-Maselesele (2009:54) found that clinics in Limpopo are very small and the physical layout is not conducive to IMCI activities such as counselling patients in privacy.

2.3.3 Case management factors (process)

The IMCI guidelines is a syndromic approach, where a limited number of carefully selected symptoms and signs are the entry point for management of the child. IMCI is taught to health workers working at the primary level in a structured course. All IMCI-trained health workers are then visited at their own clinics to help them transfer the skills they have learnt to the workplace. This aspect of IMCI is known as the case management component (Rhode & Mash, 2015:100).

Case management refers to the *process* that should be executed by staff to provide quality care to children under five years and includes the utilisation of IMCI guidelines and checklists, complete and accurate documentation, identification of problems, treatment, health prevention and health promotion. Each of these case management skills is discussed underneath.

2.3.3.1 Utilisation of IMCI guidelines and checklists

In order to reduce the under-five mortality rate, Mulaudzi (2015:90) suggests that IMCI practitioners should be encouraged to follow the specific steps according to the IMCI guidelines of the Department of Health (DOH, 2014) when consulting children between 2 and 60 months old. For example, to assess for general danger signs, IMCI practitioners should ask about coughing or difficulty breathing, diarrhoea, fever and ear problems and check against clinical signs for IMCI classification according to the severity of illness. Measles, HIV infection and TB should be considered if any clinical symptoms and signs are found. In addition, the nutritional and immunisation status in every child should be assessed and treatment should be given according to the classification of the condition.

In Tanzania, “low adherence to clinical guidelines was found, and clinicians appear to choose questions and examinations that they find more relevant for the presenting symptoms, disregarding the guidelines” (Lange, Mwisongo & Maestad, 2014:56–63).

Lange *et al*. (2014:60) furthermore report that “lack of adherence is due to time pressure and work overload as well as a belief that diligently following the IMCI guidelines will not make a difference for health outcomes”.

In KZN, Pillay (2012) found that IMCI recording forms are not available at facilities and assessments are not done as per IMCI guidelines; most of the nurses are PHC-trained and follow the EDL protocols instead of the IMCI protocols in the treatment of under-five children. Pillay (2012:89) also reports that immunisation status is not checked on contact, but that

mothers are asked to bring their children back on another day that is allocated for immunisations only. In addition, assessing and classifying sick children for malnutrition are poorly done, no urgent pre-referral treatment is given before children are sent to the doctor for further assessment, there is a reluctance to use the IMCI booklets, IMCI medicine is unavailable and recordings are done only on outpatient cards and Road to Health Booklets (RTHBs), but not on IMCI documentation (Pillay, 2012:90).

According to the findings in the study conducted by Maleshane (2012:82), the IMCI strategy is not implemented in the North West province either. A study by Chopra *et al*. (2013:49) shows that although the IMCI guidelines are used, they are not implemented correctly or completely. Cheema *et al.* (2013:43) highlight that children are still seen in order of arrival instead of being triaged to ensure that the sickest children are prioritised.

2.3.3.2 Complete and accurate documentation

Based on their multi-country survey on global challenges with the scale-up of the IMCI strategy, Goga and Muhe (2011:6) reported that "all countries have made progress in improving policies to increase geographical and financial access to essential child health interventions and services. Data from South Africa show that although health workers are implementing IMCI, clinical assessments using IMCI documentation are frequently incomplete" (Goga & Muhe, 2011:2)

Mulaudzi (2015:91) also found that classification of the conditions is incomplete and incorrect. In a study done in Botswana it was found that recording of the assessments is frequently incomplete, and that some children requiring urgent referrals are not referred (Nkosi, Botshabelo, Jorosi, Makole, Nkomo & Ruele, 2012:100). Although cough or difficult breathing, diarrhoea, fever or ear problems are generally documented, not all referral letters have all the symptoms documented (Mulaudzi, 2015:92).

2.3.3.3 Identification of problems

In a study conducted in Botswana, it was found that a large population of children are rarely screened for possible compromised dietary intakes and nutritional status (Nkosi *et al*., 2012:99). A study in Tanzania indicates that, although all the districts have received training on IMCI, the main challenge to implementation is poor adherence to the guidelines, with most of the healthcare workers trained in IMCI not following the protocol consistently (Kiplagat *et al*., 2014:2). Furthermore, it was found that referral practices are also recorded poorly in Tanzania (Kiplagat *et al*., 2014:2).

2.3.3.4 Treatment

Mulaudzi (2015:91) found that "the recommended pre-referral treatment is not always administered at clinics. None of the children with severe malnutrition received vitamin A. Blood glucose was also not checked in all children with severe pneumonia and severe malnutrition". The recommended IMCI emergency medicines were not usually available, which made case management difficult and ineffective (Adekanye & Odetola, 2014:29). Fewer children with severe pneumonia received ceftriaxone, co-trimoxazole and oxygen before referral (Mulaudzi, 2015:92).

However, according to Mulaudzi (2015:90), before referral of children was done, caregivers received counselling on the medical condition of the child, immunisations, how to administer treatment and how to recognise symptoms and signs that indicate when the child should return.

2.3.4 Benefits of IMCI (outcomes)

Cheema *et al*. (2013:43) are convinced that "the algorithmic approach of IMCI has proven benefits for the care of sick children, because all children are rapidly assessed for general danger signs". IMCI has various benefits. The sections below discuss the following benefits or *outcomes*: improved quality care, improved case management skills, accurate identification of childhood illness and timely referrals, appropriate treatment, decreased mortality, effective utilisation of the budget, improvement of family and community practices and improved health system effectiveness.

2.3.4.1 Improved quality of care

Shrivastava *et al*. (2013:188) found that the implementation of IMCI has globally been associated with multiple benefits for the healthcare delivery system, healthcare staff and community, such as reducing under-five mortality, augmenting nutritional status of children, improving the knowledge and satisfaction of caregivers, enhancing the skills and performance of health providers, improving quality of care, reducing the financial burden on the health system, discouraging the practice of misuse of antibiotics and other medicine, and providing assistance for diagnosis of HIV-1 infections. Furthermore, it was found that "there was a dramatic improvement in the quality of care received by children after IMCI training" (Rakha, Abdelmoneim, Farhoud, Pièche, Cousons, Daelmans & Bahl, 2013:5).

2.3.4.2 Improved case management skills

The case management component of the IMCI approach has enabled PHC nurses to assess, classify and treat sick children (Cheema *et al*., 2013:43). In a study conducted in KZN and Limpopo on the experiences of training and the implementation of integrated management of

IMCI, Horwood *et al*. (2009:3) found that “health worker performance showed improvement in terms of skills in managing sick children, newly trained IMCI practitioners were motivated by follow-up visits and confidence had increased after IMCI training”.

2.3.4.3 Accurate identification of childhood illness and timely referrals

Nkosi *et al*. (2012:93) report that in Botswana, the use of IMCI guidelines promotes accurate identification of childhood illnesses, encourages appropriate combined treatment of all major illnesses and speeds up referrals of severely ill children. Pre-referral treatment for children with severe dehydration is done well. In Tshwane all children are given ORS before being sent to the hospital (Mulaudzi, 2015:92).

2.3.4.4 Decreased mortality

Mupara and Lubbe (2016:9) report that in Botswana, 5.67% of all children never reach their first birthday and that 7.4% of children born in Botswana will not reach their fifth birthday. According to these authors, only IMCI-trained nurses tending to under-five patients in Botswana will lead to a decrease in the current morbidity and mortality rates in children under the age of five in Botswana. Ahmed *et al.* (2010:128) confirm the various benefits of the implementation of IMCI in terms of health service quality, mortality reduction and healthcare cost savings in Uganda, Tanzania, Bangladesh, Brazil, Peru, South Africa, China, America, Nigeria and Morocco.

“Globally, the IMC approach has been shown to lower the under-five mortality rate” (Bothma *et al.*, 2015:89).

2.3.4.5 Effective use of the budget

According to Shrivastava *et al*. (2013:188), the “IMCI is a cost-effective strategy that provides quality-assured care. It encourages the use of simple clinical signs for detecting cases without the use of laboratory investigations, while offering empirical treatment”.

2.3.4.6 Improvement of family and community practices

According to a study conducted by Rakha *et al*. (2013:1) in Egypt, mortality reduction doubled after the implementation of IMCI. Their study covered the entire population of children under five years of age in the country. They found improvement in all three components of the IMCI strategy: strengthening of health system supports, strengthening of health providers’ skills as well as strengthening of family and community practices. In this study, strong evidence was found that the rate of mortality decline was faster after the implementation of IMCI (Rakha *et al*., 2013:6). Furthermore, IMCI comprises of preventive and curative components that are executed by mutual interactions between families/communities and health facilities. IMCI aims

for improvement in three areas, namely patient management skills of healthcare staff, health systems and family/community health practices (Shrivastava *et al*., 2013:188).

Although "IMCI is not explicitly published as a triage tool, the manual calls for rapid appraisal of children in the waiting are to detect danger signs such as inability to feed/drink, vomiting, convulsion and lethargy/abnormal consciousness levels. After this triage process, the child can be assessed, and the illness accurately classified and managed along set algorithms" (Buys, 2013:28).

2.3.4.7 Improved health system effectiveness

A significant decrease in mortality has been found in Benin after IMCI training. Furthermore, "strengthening of health system support and community health practices as well as improvement in the skills of facility-based health workers have been reported" (Steinhardt, Onikpo, Kauame, Piecefield, Lama, Deming & Rowe, 2015:276). According to a study conducted in Nigeria by Jibo, Iliyasu, Abubakar, Umar and Hassan (2014:76), the following was found after the implementation of IMCI: improved child health practices, children were more likely to be fully immunised, improved utilisation of available healthcare services and improved nutritional practices. In addition, it was observed that more caregivers practise hand-washing after using the toilet or cleaning a child and before and after feeding a child in IMCI communities (Jibo *et al*., 2014:73).

2.4 CONCEPTUAL FRAMEWORK

The Donabedian framework is a conceptual model that provides a framework for examining health services and evaluating quality of care. According to the model, "information about quality of care can be drawn from three categories: *structure*, *process* and *outcomes*. Structure describes the context in which care is delivered, including hospital buildings, staff, financing and equipment. Process denotes the transactions between patients and providers throughout the delivery of healthcare. Finally, outcomes refer to the effects of healthcare on the health status of patients and populations" (Ghaffari, Jahani, Jafarnejad, & Esmaily, 2012:50).

In terms of medical care, Donabedian (2005) describes seven elements of quality: efficacy, effectiveness, efficiency, equity, optimality, acceptability and legitimacy. Although "efficacy is hard to measure, it refers to care provided under optimal conditions and is the basis against which measurements should be made. Effectiveness describes the outcomes of interventions. Efficiency refers to cost reductions without compromising effects. Equity refers to fairness in the distribution of healthcare in populations. Optimality is about balancing the costs and benefits of healthcare. Acceptability encompasses accessibility of healthcare and interpersonal patient-provider interactions, while legitimacy refers to the social acceptability in

which healthcare is delivered" (Ameh, Gomez-Olive, Kahn, Tollman & Klipstein-Grobush, 2017:229).

The Donabedian framework was used for this study because it is the acknowledged framework for evaluating the quality of healthcare and is also used by the DOH of SA for the implementation of the Integrated Chronic Disease Management (ICDM) model in PHC facilities (Ameh *et al.*, 2017:17).

Donabedian's conceptual framework consists of the SPO model (WHO, 2008:10–11), as outlined below:

2.4.1 Structure

Donabedian defines *structure* as the professional and organisational resources associated with the provision of healthcare (Ameh *et al*., 2017:3). This involves assessing the adequacy of facilities and equipment, administrative process and the quality and quantity of health personnel in terms of their training. According to Donabedian (2003:57), these factors control how providers and patients in a healthcare system act and are measures of the average quality of care within a facility or system. Structure is the characteristics of the setting within which healthcare is provided (Donabedian, 1997:1147). In this study, structure refers to the organisational resources that need to be in place (Section B of the questionnaire).

2.4.2 Process

Process is the things done to and for the patient, referring to patient satisfaction with the quality of care (Ameh *et al*., 2017:3). It is the cooperation between all staff members involved in the execution of the programme. Commonly include diagnosis, treatment, preventive care and patient education. Process can further be classified as a technical process or interpersonal process, both encompassing the way care is delivered (Donabedian, 2003:57). Donabedian (1997:1147) describes process standards as the specific activities included in the provision of healthcare. In this study, process included the case management activities as describe in Section C of the questionnaire, for example the utilisation of standardised IMCI checklists.

2.4.3 Outcomes

Outcomes are the desired results of care provided by the healthcare practitioner (Ameh *et al*., 2017:3). It is related to the outcomes of each facet of the personnel development programme the person's current and future status.

According to Donabedian (1997:1147), outcome standards are the results of care relating to the health status of the patient, including the level of satisfaction with the care. In this study, outcomes refer to the benefits of IMCI, as described in Section D of the questionnaire.

Table 2.1 is a schematically presentation as adapted from Donabedian as utilised in this study

Table 2.1: Conceptual framework

STRUCTURE →	**PROCESS** →	**OUTCOMES**
Organisation	**Case management**	**Benefits**
Facilities	Training offered	Clinical skills
Equipment and supplies	Quality of training	Student satisfaction
Training	Promotion of continuity of follow-up training	Student knowledge and attitudes
Facilitators' knowledge, Attitudes		Efficiency
Supervision		
Facility amenities		

(adapted from Donabedian, 2005:692–695)

2.5 SUMMARY

Chapter 2 provided a background regarding the current status of IMCI according to the literature. No studies conducted in the military health services could be retrieved Donabedian's SPO model was applied as the conceptual framework in this study.

2.6 CONCLUSION

According to the literature reviewed, staff shortages, inadequate training and a lack of supervision are among the most common organisational (structure) factors to influence the successful implementation of IMCI. It is a concern to read that according to the literature, IMCI was already introduced in 1996, but 22 years later, in 2018, IMCI is still not fully implemented.

The research methodology is discussed in Chapter 3.

CHAPTER 3:
RESEARCH METHODOLOGY

3.1 INTRODUCTION

The preceding chapters described the background of and rationale for the study and presented the literature review. The purpose of this chapter is to provide an in-depth discussion of the research methodology that was applied to determine the factors influencing the successful implementation of IMCI in the AMHU GT and 1 Military Hospital, South Africa.

3.2 RESEARCH DESIGN

The research design is the plan or blueprint of a proposed study. It is the vehicle for systematically testing research questions and provides the structure for maintaining control in the study (LoBiondo-Wood & Haber, 2014:164).

This study applied a quantitative, non-experimental and descriptive design. Quantitative research is defined as a formal, objective and systematic process through which numerical data are obtained to provide information about variables (Burns & Grove, 2011:22). Non-experimental research is clearly distinguishable from true experimental and quasi-experimental designs in that there is no manipulation of the independent variable and no intervention, nor is the setting controlled (Brink *et al*., 2013:112).

Descriptive research is the exploration and description of phenomena in real-life situations, in natural settings, with no manipulation of the situation in any way (Burns & Grove, 2011:34–35). According to Burns and Grove (2011:32), descriptive studies are often conducted when little information about a phenomenon is available.

3.3 POPULATION AND SAMPLING

The target population is the entire set of individuals meeting the sampling criteria (Gray *et al*., 2017:330). An accessible population is the portion of the target population to which researchers have reasonable access (Gray *et al*., 2017:332).

The target population of this study (N = 135) comprised of clinical associates (n = 45), registered nurses (n = 65) and medical practitioners (n = 25). Clinics (n = 14) and the paediatric outpatient department at 1 Military Hospital.

According to Gray *et al*. (2017:329) sampling involves selecting a group of people with which to conduct a study. Because of the small numbers, an all-inclusive sample was utilised for this study (n = 135) as shown in table 3.1.

Table 3.1: Participants for this study

	1 Mil Hospital	AMHU GT	Total
Medical practitioners	20	5	25
Registered nurses	5	60	65
Clinical associates	10	35	45
Total	**35**	**100**	**135**

Table 3.2 show that the response rate was (n=105, 78%) Twenty SAMHS members working in 1 Military Hospital and 85 working in the 14 clinics in the AMHU GT responded

Table 3.2: Response rate

	1 Mil Hospital	AMHU GT	Total
Medical practitioners	15	5	20
Registered nurses	5	60	65
Clinical associates	2	18	20
Total	**20**	**85**	**105**

3.3.1 Inclusion criteria

Inclusion sampling criteria are characteristics that a subject or element must possess to be part of the target population (Burns & Grove, 2017:331). Participants were those on duty during the period of data collection and were either a clinical associate, registered nurse or a medical practitioner proficient in English.

3.3.2 Exclusion criteria

Exclusion sampling criteria are characteristics that can cause a person or element to be excluded from the target population (Burns & Grove, 2017:331). Only members on deployment, on maternity leave or those not willing to participate were excluded from the study.

3.4 DATA-COLLECTION TOOL

A structured, self-administered questionnaire (See Appendix 5) based on the 2014 IMCI guidelines, (DOH, 2014), was developed for data collection. The compilation of the questionnaire was done in consultation with the researcher's study supervisor and a statistician.

According to Gray *et al*. (2017:407), a questionnaire is a written self-report form designed to elicit information that can be obtained from subjects' written responses. For this study, the questionnaire could be distributed to a large sample directly, and although the questions had less depth, the information derived should be similar to information obtained by interview and it was easier to collect the data from various clinics than to have interviews with all the participants.

The questionnaire comprised primarily of closed-ended questions. Closed-ended questions are questions that have answers selected by the researcher (Burns & Grove, 2011:353). A total of 64 questions were included in the questionnaire.

Section A: Demographic data

The questions in Section A were related to the participants' demographic data. It consisted of ten questions (1 to 10) that were aimed at collecting data regarding the participants' age, gender, staff category, years of service in the SAMHS, IMCI training, length of training, follow-up training, frequency of assessment of children under the age of five and the duration of the IMCI assessment.

Section B: Health system (organisational) factors influencing the implementation of IMCI

The 14 questions in Section B (1 to 14) were aimed at determining the organizational factors influencing IMCI in the health system. Therefore, data were collected regarding policy, adequately trained staff for IMCI activities, and reduction of follow-up visits, using the IMCI chart booklet in assessing children under the age of five, availability of medicine and equipment and supervision.

Section C: Case management skills of health workers

The 29 questions in Section C (15 to 43) were aimed at the collecting data regarding the skills of health workers and included information on the utilisation of the standardised IMCI checklist, giving of immunisations and vitamin A if needed, treatment according to IMCI guidelines and complete and accurate completion of documents.

Section D: IMCI benefits

The 10 questions in Section D (44 to 53) were aimed at collecting data on improved quality of care, budgetary benefits, improved family and community practices and improved health system functioning.

Section E: Recommendation

The last question (Section E) (54) was open-ended. Space was provided for comments, where the participants could write recommendations on how to improve the implementation of IMCI in the SAMHS.

A four-point Likert scale was used. According to Burns and Grove (2011:357), the Likert scale is designed to determine the opinions or attitudes of study subjects. Creswell *et al.* (2014:9) indicate that the Likert scale is the most widely used scale. In this study, the four-point Likert scale indicated the following options: 1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree. This forced the participants to either agree or disagree, with no possibility of being neutral (see Creswell *et al*., 2014:9).

Because English is the communication language of the DOD, the questionnaire was only available in English.

Questionnaires were deemed a suitable instrument for this study, as they are time-effective and easy to analyse. In addition, members of the South African National Defence Force (SANDF) regularly participate in surveys with questionnaires to complete.

The researcher handed out 135 questionnaires to all clinical associates, registered nurses and medical practitioners in the General Outpatient Department and Paediatric outpatient department at 1 Military Hospital as well as all the AMHU GT clinics.

3.5 PILOT TEST

The questionnaire was pilot-tested before the main study. The questionnaire was tested on 10% of the target population, as advised by De Vos, Strydom, Fouché and Delport (2012:237). According to Grove, Burns and Gray (2013:523), the pilot test assists in identifying problems relating to the design as well as questions that are not well understood. The pilot test also provides an indication of how long it will take to complete the questionnaire.

The questionnaire was pretested on 15 members from the target population (10%) during February 2017. These members were from 1 Military Hospital and two of the AMHU GT clinics. The reason for selecting them was because they were easy assessable, as they were on the premises for a three-week military course. These data were excluded from the main study. Recommendations on questions to be included by these nurses were considered to rectify and update the questionnaire. Questions regarding the length of the training (Section A, Q7), supervisory support (Section B, Q6), IMCI wall charts (Section B, Q8) and clinic space (Section B, Q14) were included in the final questionnaire.

3.6 VALIDITY AND RELIABILITY

Validity is the truthfulness of a research study (Gray *et al*., 2017:221). Validity in this study was determined through cross-validation, namely content validity and face validity.

Content validity examines the extent to which the measurement method includes all major elements relevant to the construct being measured (Gray *et al*., 2017:376). The researcher ensured that the questions on IMCI were representative. The questions asked in the questionnaire were specific regarding IMCI strategies, as described in the guidelines (DOH, 2014). The researcher formulated the questions and sent them for validation to the supervisor, other PHC nurses, the statistician and other consultants in research at the SAMHS Nursing College and Stellenbosch University.

Face validity refers to the extent to which an instrument looks valid (Creswell *et al*., 2014:13). The questionnaire was compiled according to the IMCI guide (DOH, 2014). The questionnaires were easily understood and completed by all the participants

Reliability is the extent to which a measuring instrument is repeatable and consistent (Creswell *et al*., 2014:13). In this study, the researcher personally collected and captured the raw data. The pilot test supported the reliability, as it was done under similar conditions as the actual study. Experts in research methodology, statistics and nursing were consulted to evaluate the research process and outcome and to determine the reliability and content.

3.7 DATA COLLECTION

According to Gray *et al*. (2017:55), the process of data collection extends from before the first subject's data are obtained and ends as the last subject's data are obtained. In this study, data collection was the process of collecting data from all registered nurses, medical practitioners and clinical associates in AMHU GT and 1 Military Hospital. The researcher was responsible for the data collection.

Following the approval of the Health Research Ethics Committee at Stellenbosch University (Annexure 1), ethical approval was also obtained from Defence Intelligence (Annexure 2) as well as the SAMHS Ethics Committee which is situated at 1 Military Hospital.(Annexure 3) Furthermore, verbal permission to conduct the study at the identified clinics in Gauteng was obtained from the clinic managers concerned, and a clear statement of the purpose, procedure, risk and benefits of the research project was discussed before consent to participate was obtained from the participants.

For this study the selected participants in AMHU GT and 1 Military Hospital completed a questionnaire that was divided into five sections, namely demographic data (Section A),

organizational factors (Section B), case management skills (Section C), IMCI benefits (Section D) and recommendations (Section E).

The consent documents were handled separately from the questionnaires. All data were handled by the researcher and clinic managers only. The researcher distributed and collected the consent forms and questionnaires from each clinic as well as 1 Military Hospital personally.

All the members of 1 Military Hospital were gathered in the auditorium of 1 Military Hospital on the 6h of March 2017. The participation information (see Appendix 4) leaflet and consent form were handed out to the participants on the day of data collection. An in-depth explanation of the study was provided to the participants after the researcher introduced herself to the participants. The average time to complete the questionnaire was 25-30 minutes. Some members indicated that they have other commitments and it was agreed that the researcher will collect their questionnaires on the 13th of March 2017. Most of the questionnaires were collected on the 6th of March 2017. Sealed boxes were left at the receptionist of General Out Patient Department (GOPD) and Paediatric outpatient department for the members to place their questionnaires in after completion. The researcher followed up on the 13th March 2017, followed the same process with members that was not at the initial briefing and planned to collect the sealed boxes on the 17th March 2017. The sealed boxes with the completed questionnaires were stored in a lockable cupboard at the home of the researcher.

Four clinics which is within a 5 - 10km radius from each were visited on the 20th March 2017. Appointments were made for 08h00 at the SAMHS Training Formation, 10h00 at 68 Air School, 12h00 at Airforce gym and 14h00 at Personnel Service School. The researcher used the same process and planned to follow up on the 24th March 2017 and 27March 2017 with final collection on 31 March 2017.

Same arrangements were made at Airforce Base Waterkloof and Gezina. These clinics are in a range of 30 -50 Km from each other and appointment times were made for 08h00 and 13h30. Initial briefing was done on the 3rd April 2017. With follow updates on 7 April 2017 and 10 April 2017 with final collection on 14 April 2017.

Centre of Advanced Training, Dequaria and Armscor clinics were visited on the 17th April 2017, followed up on 21 April 2017 and 24 April 2017 with final collection on 27 April 2017. Although it was a public holiday the clinic manager and researcher arranged that the sealed box will be available for collection from the patient admin member.

Murryhill and Wonderboom clinics are within a radius of more than 75km and the researcher could not make so many appointments. The briefing was done at Murryhill at 09h00 and at

Wonderboom at 14h00 on the 2 May 2017. Sealed completed box were collected again on the 6th of May 2017.

Dunnother, Heidelbeg and Kempton park clinics were more than 150km away from the researcher home and the researcher made appointments for each clinic on a separate day for 10h00. The researcher waited for all the participants to complete the questionnaires but left a sealed box for the members that was not on duty on that specific day.

Last sealed box was collected on the 28th May 2017.

In this study, the data were collected by the researcher during March to May 2017 according to a predetermined plan as described below (Table 3.3).

Table 3.3: Data-collection plan

Date of distribution	Clinic	Date of collection	Follow-up collection date	Final collection
6 March 2017	1 Military Hospital General outpatient department and Paediatric outpatient department	10 March 2017	13 March 2017	17 March 2017
20 March 2017	AMHU GT clinics: • SAMHS Training Formation • 68 Air School • Airforce Gym • PS School	24 March 2017	27 March 2017	31 March 2017
3 April 2017	• AFB Waterkloof • Gezina	7 April 2017	10 April 2017	14 April 2017
17 April 2017	• CAT • Dequaria • Amscor	21 April 2017	24 April 2017	27 April 2017
2 May 2017	• Murryhill • Wonderboom			5 May 2017
8 May 2017	• Dunnotter			12 May 2017
15 May 2017	• Heidelberg			19 May 2017
22 May 2017	• Kemptonpark			28 May 2017

The researcher visited all the clinics on the planned days. If SAMHS members were sick or on leave on the determined date, a follow-up appointment was made after the initial collection of the data to ensure maximum participation.

To reach the maximum participants in terms of SAMHS members who were on leave, sick leave or night duty during the time of data collection, the researcher collected all the boxes with questionnaires after five working days. For some of the clinics, the researcher returned

up to three times to collect new completed questionnaires. Questionnaires at the clinics in the East and West Rand were only collected once due to the distance from Tshwane. The data were collected over a period of 12 weeks from March until May 2017.

The study was conducted according to the ethical principles of respect for human dignity, beneficence and justice relevant to the conduct of research. The researcher adhered to all the ethical considerations regarding this study.

3.8 DATA PREPARATION

Raw data of the 135 completed questionnaires were captured on an Excel spreadsheet received from the statistician. The data were entered onto the Excel spreadsheet using the following codes:

Section A: Demographic data

Age in years

21–30	1
31–40	2
41–50	3
51–60	4
> 60	5

Gender

Female	1
Male	2

Staff category

Medical practitioner	1
Registered nurse	2
Clinical associate	3

Years of employment

< 5	1
5–10	2
11–15	3
> 15	4

Trained

Yes	1
No	2

Year of training

2016	1
2015	2
2014	3
Before 2014	4

Length of training

2 weeks	1
1 week	2
< 3 days	3

Follow-up training

6 months after training	1
Annually	2
Never	3

Frequency of assessing children

Daily	1
Weekly	2
Never	3

Duration of IMCI assessment

< 10 minutes	1
10–20 minutes	2
30–40 minutes	3
50–60 minutes	4

Sections B, C and D

Strongly disagree	1
Disagree	2
Agree	3
Strongly agree	4

The researcher did not fill in missing data on the spreadsheet. If participants did not answer a specific question, the space was left blank. After all the data were entered, an independent person was asked to randomly check the entered responses to verify the accuracy of the data-capturing process. This person, who recently graduated with her PhD, is a research expert at the SAMHS Nursing College and also the chairperson of the research committee.

This document was sent to the statistical department at Stellenbosch University, who analysed the data and presented it in frequency tables. Closed-ended responses were quantified into single frequencies and percentages. Frequency tables, bar and pie diagrams and percentages were compiled to communicate the data. The responses of the open-ended question were categorised and added to the descriptions of the closed-ended data.

3.9 DATA ANALYSIS

A statistician of Stellenbosch University conducted the analysis and interpretation of the data. After the data were captured on an Excel spreadsheet, they were analysed with IBM SPSS, version 23 of 2009, a computer statistical program.

3.10 SUMMARY

The research methodology, which includes the research design, population and sampling, data-collection tool, validity and reliability, data collection and data analysis were discussed in this chapter.

Chapter 4 presented the study results

CHAPTER 4:
RESULTS

4.1 INTRODUCTION

This chapter includes the data analysis, interpretation and discussion of the study findings. The data are presented in four sections according to the questionnaire, namely demographic data, organisational factors, case management skills and IMCI benefits. The purpose of the data analysis was to describe and identify the factors influencing the implementation of IMCI in the SAMHS.

4.2 DESCRIPTION OF THE DATA ANALYSIS

A statistician of Stellenbosch University conducted the analysis and interpretation of the data. After the data were captured on an Excel spreadsheet, they were analysed with IBM SPSS, version 23, of 2009 a computer statistical program. The results of the study are presented and interpreted in frequency tables, bar diagrams, histograms and percentages. No other tests were done, as the objectives were purely descriptive, and the statistician was only mandated to analyse the data in accordance with the approved objectives in the protocol.

4.3 SECTION A: DEMOGRAPHIC DATA

This section refers to personal data of the participants and includes their age, gender, staff category, years of employment in the military, IMCI training, year of training, length of training, follow-up training, frequency of assessing children under the age of five and duration of IMCI assessment.

4.3.1 Question 1: Age (n = 105)

The participants' ages ranged from 21 to above 60 (Figure 4.1). Most participants 38 (35%) were between the ages of 31 and 40; 9(9%) were in the age range of 21 to 30, 30 (29%) were in the age range of 41 to 50 and 27 (26%) were in the age group 51 to 60. Only one (1%) participant was above the age of 60 years. These results show that the on average workforce is between the ages of 31 and 40 years, which is a relatively young workforce. In the SANDF, members retire at the age of 60. Most participants of the study can still contribute another 20 years to the workforce.

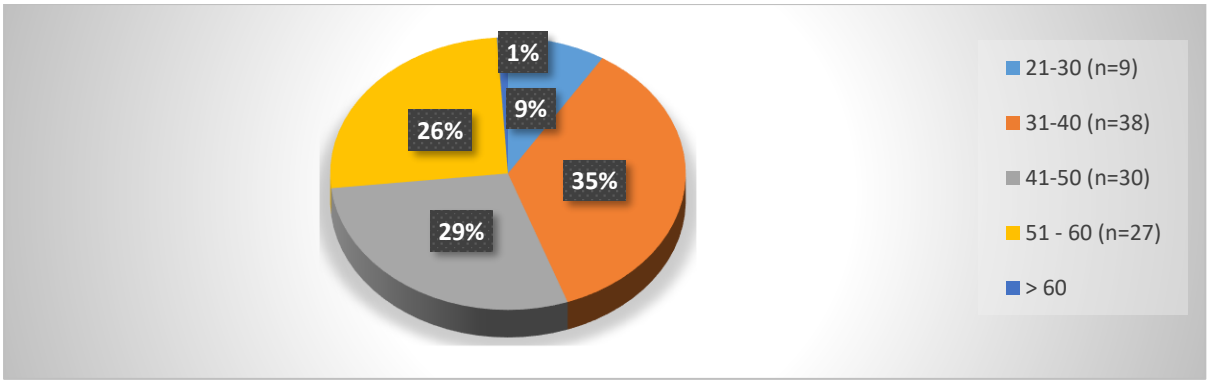

Figure 4.1: Age in years of participants

4.3.2 Question 2: Gender (n = 105)

As shown in Figure 4.2, the overwhelming majority 75 (71%) of the participants were female, with only 30 (29%) male participants. This is similar to many countries where women comprise over 75% of the workforce in the health sector (WHO, 2008:1). In a study conducted in Botswana, the majority of the study participants were female (Mupara, 2013:96).

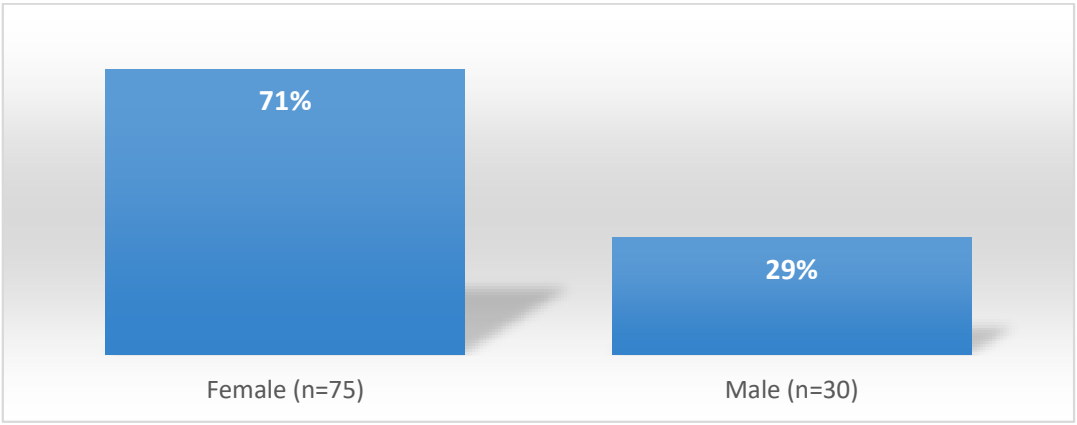

Figure 4.2: Gender of participants

4.3.3 Question 3: Staff categories (n = 105)

As shown in Figure 4.3, the majority of the participants 63 (60%) were registered nurses, followed by 22 (21%) clinical associates and 20 (19%) Medical practitioners. It was observed in the clinics as well as in 1 Military Hospital that there are very few Medical practitioners and clinical associates. No studies could be found that included clinical associates; most studies included only professional nurses in PHC clinics.

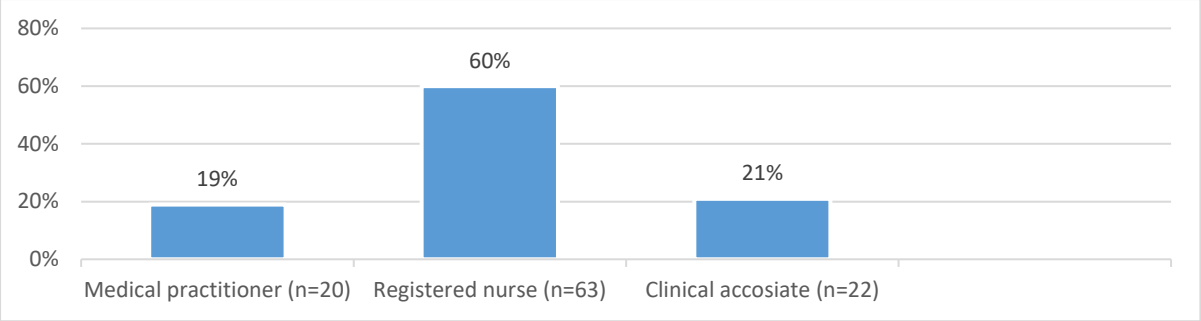

Figure 4.3: Staff category

4.3.4 Question 4: Years of employment in the SAMHS (n = 105)

As shown in Figure 4.4, the majority 41 (39%) of the participants had been employed in the SAMHS for more than 15 years, while 31 (30%) had been employed between five and ten years, 17 (16%) for 11 to 15 years and 15 (14%) for less than five years. Missing 1 (1%) This is evidence of an experienced workforce in the SAMHS.

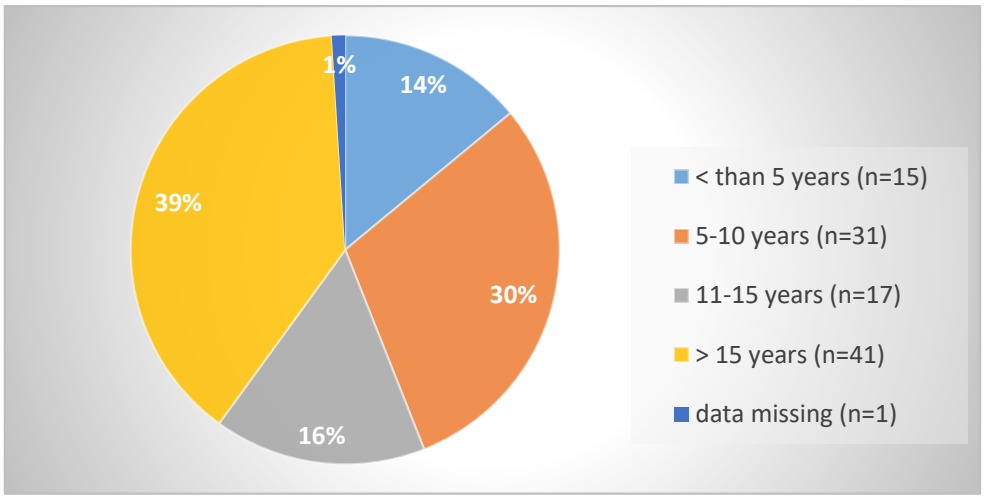

Figure 4.4: Years of employment in the SAMHS

4.3.5 Question 5: IMCI-trained (n = 105)

Figure 4.5 shows that most of the participants 91 (87%) indicated that they had received IMCI training, while 14 (13%) had not received any training. In the Gauteng province, almost all SAMHS members were IMCI-trained.

Although most of the participants were IMCI-trained, some mentioned that all staff, including the enrolled nurses and the administrative staff, should be trained in IMCI. The participants felt that administrative staff do not understand the importance of IMCI and therefore do not capture the information according to the IMCI checklist. Other participants felt that if the administrative staff understand IMCI, they could direct ill children to be seen sooner very early in the process.

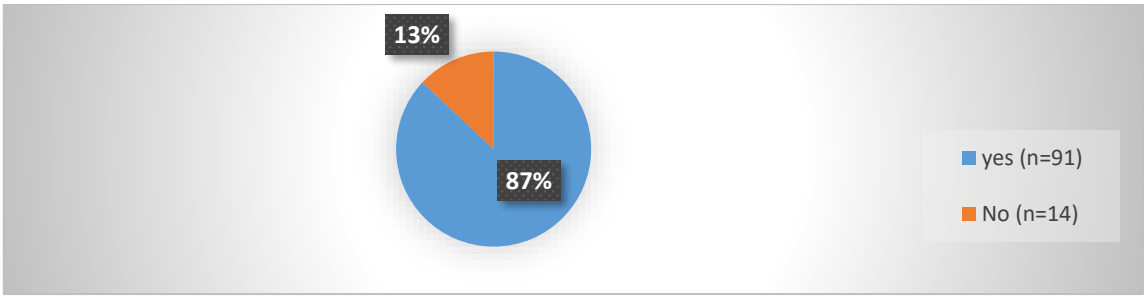

Figure 4.5: IMCI-trained

4.3.6 Question 6: Year of training received (n = 94)

As shown in Figure 4.6, most of the participants 32 (31%) received IMCI training in 2016 while completing the Diploma in Clinical Nursing Science, Health Assessment, Treatment and Care, 23 (22%) participants were trained during 2015 and 15 (14%) participants in 2014, and 24 (23%) participants received training before 2014. Eleven (10%) participants did not answer the question. Although the WHO implemented IMCI training in 1996, the IMCI module was only included in the Diploma in Clinical Nursing Science, Health Assessment, Treatment and Care in 2015, while the majority of the SAMHS members were trained between 2015 and 2016.

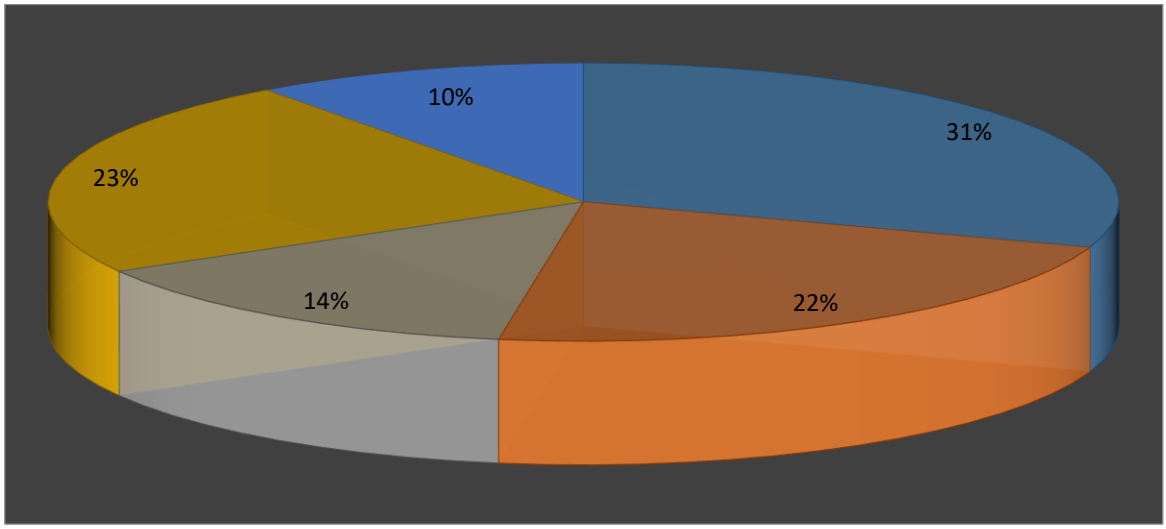

Figure 4.6: Year in which participants received IMCI training

4.3.7 Question 7: Length of training (n = 94)

Figure 4.7 shows that most of the participants 52 (50%) attended two weeks' training, 38 (36%) received one week of training, four (4%) less than three days, while 11 (10%) did not answer the question. Training therefore varied between three days and two weeks. Fifty per cent of the participants received training while they were busy with the Diploma in Clinical Nursing

Science, Health Assessment, Treatment and Care. The 11 who did not answer the question might be the participants who indicated not to have received any IMCI training.

This finding is similar to that of a study done in Tanzania, where the majority of the participants (73%) received two weeks' training, followed by 13% who attended one week of training and 6% who attended less than three days of training (Kiplagat *et al*., 2014:5). This study showed a significant increased awareness about IMCI.

In a study conducted in Limpopo and KZN, the participants felt that the information was too much to learn in 11 days (Horwood *et al*., 2009:4). Botswana adopted the five-day IMCI training course as a measure to reduce IMCI training costs and to increase IMCI training coverage (Mupara, 2013:96).

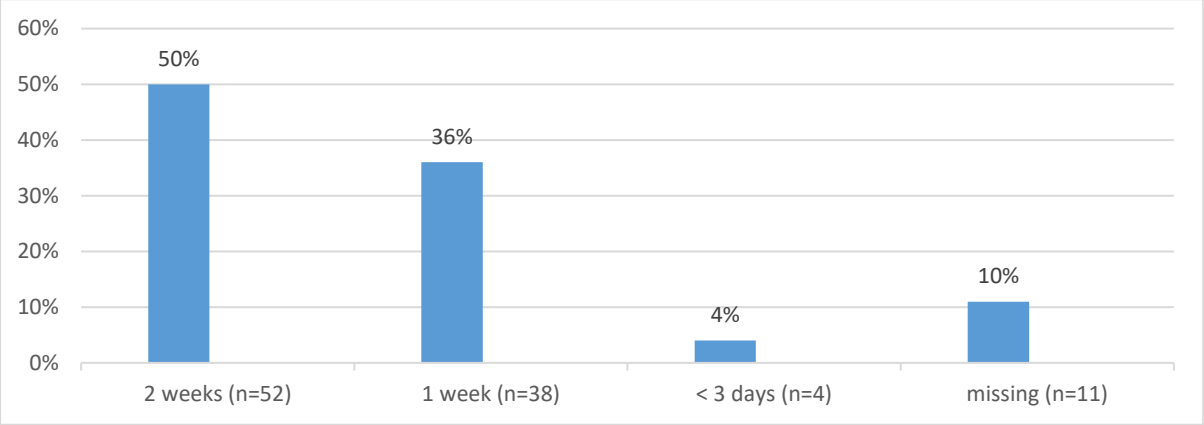

Figure 4.7: Length of training

4.3.8 Question 8: Follow-up training (n = 97)

As shown in Figure 4.8, the majority 62 (59%) of the participants had never received any follow-up training. Only 14 (13%) participants had received training after six months, while 21 (20%) received follow-up training annually. Eight participants (8%) did not answer the question.

The majority of the participants expressed a need for follow-up training in the form of refresher courses, workshops and seminars. This is similar to a study conducted in Botswana, where 78% of the participants had not received any IMCI follow-up training (Mupara, 2013:96). According to Kiplagat *et al*. (2014:5), there is no budget in Tanzania for IMCI follow-up training and supportive supervision. Stellenberg *et al.* (2015:5) argue that refresher courses should be offered annually to improve knowledge and quality of care.

IMCI training includes both skills acquisition and skills reinforcement. Follow-up after training is included as the second essential component of the IMCI process. A follow-up visit is

designed to support the transfer, application and reinforcement of new skills acquired during training. At least one follow-up visit should be conducted within one month of the training course (WHO, 1999:5).

According to Horwood *et al*. (2009:6), follow-up visits should be carried out four to six weeks after initial IMCI training to help new IMCI practitioners transfer their skills to the workplace. They furthermore state that newly trained IMCI practitioners are motivated by follow-up visits.

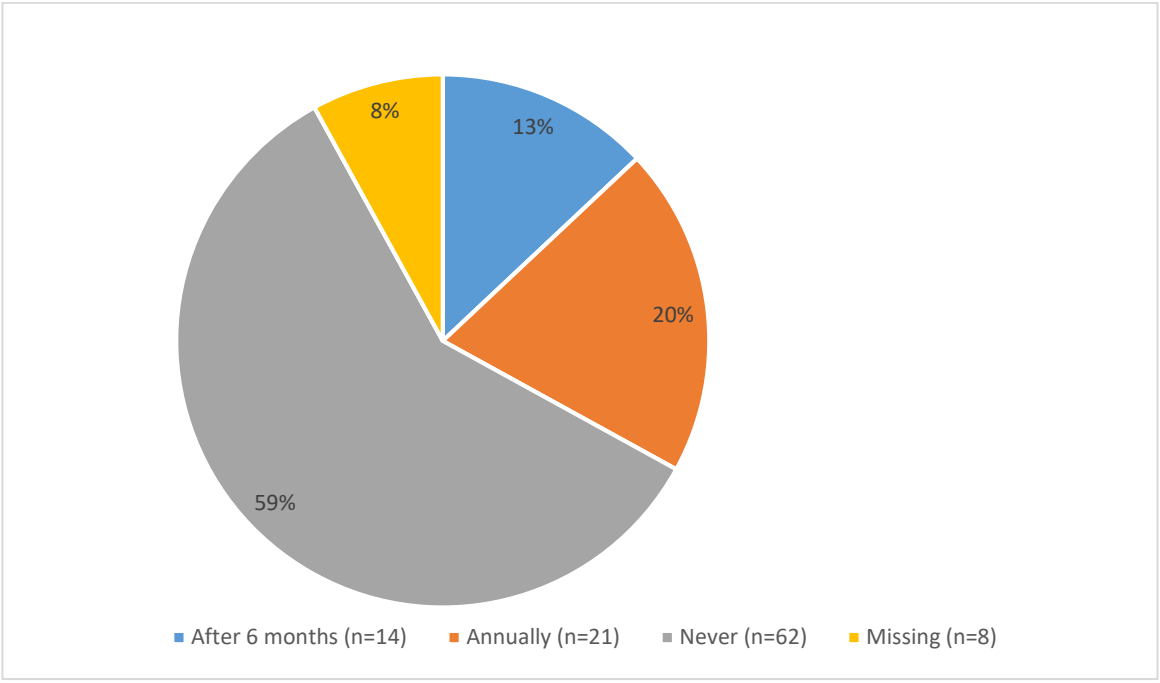

Figure 4.8: Follow-up training

4.3.9 Question 9: Frequency of assessing children under the age of five (n = 102)

As shown in Figure 4.9, just more than half of the participants 54 (51%) assess children under five daily, while 39 (37%) assess these children weekly and nine (9%) never assess any children under five. Three (3%) participants did not answer the question. According to statistics kept in the first half of the year (January–June 2017), between 15 and 25 children under the age of five are assessed in the AMHU GT clinics and 1 Military Hospital daily.

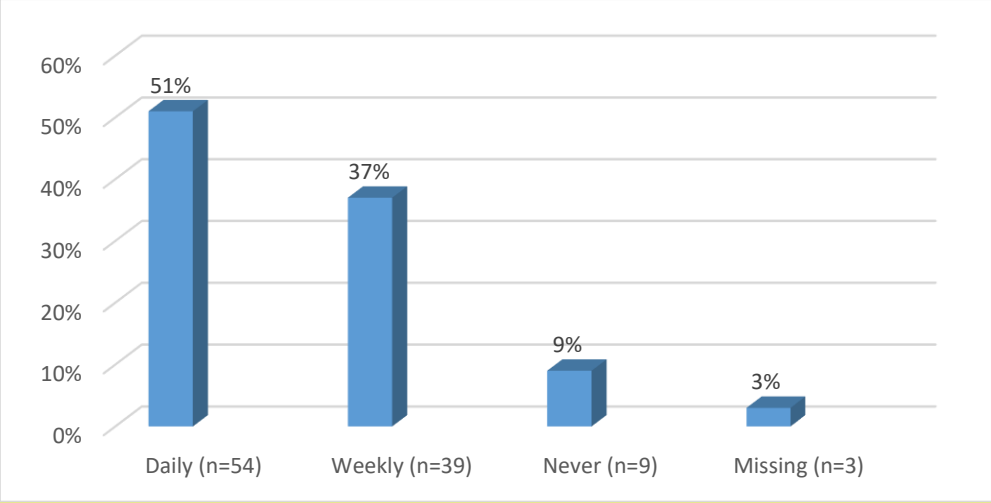

Figure 4.9: Frequency of assessing children under the age of five

4.3.10 Question 10: Duration of IMCI assessment (n = 101)

Most of the participants 57 (54%) reported that they spend between 10 and 20 minutes on IMCI assessment, while 32 (30%) of the participants spend 30 to 40 minutes on such assessment. Eight (8%) participants said they spend less than 10 minutes and an equal number of 4 (4%) participants spend between 50 and 60 minutes on each assessment. Four (4%) participants did not answer the question. These times are shown in Figure 4.10.

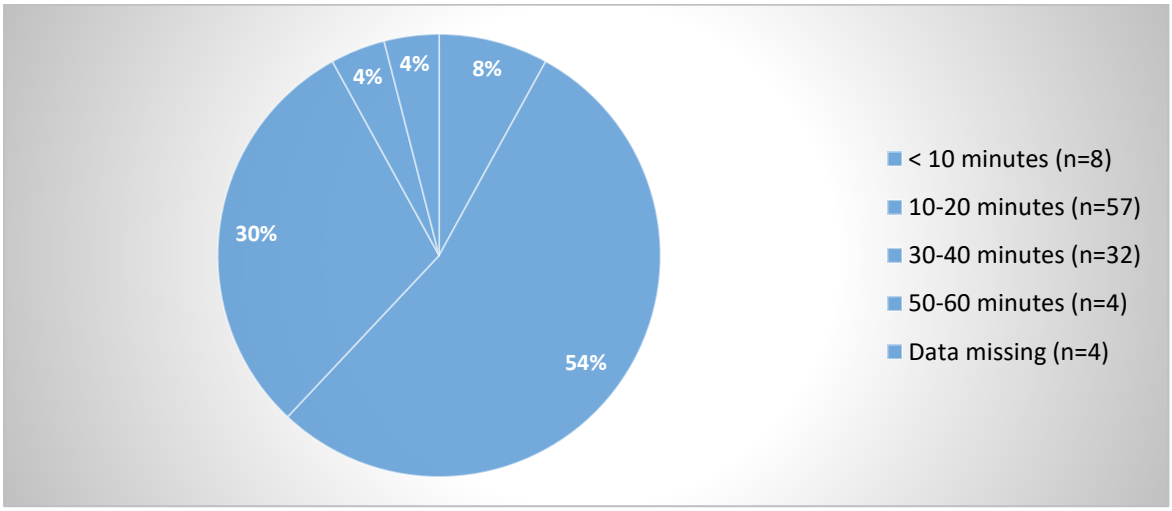

Figure 4.10: Duration of IMCI assessment

4.4 SECTION B: ORGANISATIONAL FACTORS

This section refers to data related to the organisational factors and includes information on policies, budget, staff, training, essential medicine and equipment and clinic space.

4.4.1 Question 1: The policy of the employer mandates IMCI implementation (n = 102)

As shown in Table 4.1, the majority 55 (52%) of the participants agreed and 20 (19%) strongly agreed that the policy of the employer mandates IMCI implementation, while 10 (10%) participants strongly disagreed and 17 (16%) disagreed with this statement. Three participants (3%) did not respond to the question.

One of the participants who disagreed mentioned that the clinics will function better if they have a mandate to implement IMCI. All registered nurses receive a declaration signed by the Surgeon General that they may assess and diagnose patients, prescribe treatment, and keep and supply medicine for prescribed illnesses and health-related conditions as stipulated in terms of Section 31(1)(a), (b) and (c) of the Nursing Act, No. 33 of 2005 (RSA, 2005). This document should be displayed in the SAMHS members' consulting room and renewed annually.

According to Fick (2017:211), the use of nationally standardised child health record templates, based on IMCI requirements, could mandate practitioners to follow the IMCI algorithms.

Table 4.1: Policy of the employer mandates IMCI implementation

	Frequency	Percentage
Strongly disagree	10	10%
Disagree	17	16%
Agree	55	52%
Strongly agree	20	19%
Missing data	3	3%
Total	**n=105**	**100%**

4.4.2 Question 2: Staff numbers are conducive to IMCI implementation (n = 103)

As shown in Figure 4.11, 10 (10%) participants strongly disagreed that staff numbers are conducive to IMCI implementation, 34 (32%) disagreed, 49 (46%) agreed, and 10 (10%) strongly agreed, while two (2%) participants did not answer the question.

Many of the participants comment on the shortage of staff in 1 Military Hospital as well as the AMHU GT clinics. The participants indicated that they are understaffed and overworked. One participant indicated that they are only two registered nurses in the clinic, with no doctor, and the nurses must attend to family planning, immunisation, under-five children, antenatal cases and normal daily sick reports. This impacts negatively on the IMCI strategy, as there is no time to page through the IMCI booklet.

A shortage of staff in the PHC facilities in the North West province was identified as a challenge that impacted on Registered nurses to implement the IMCI strategy (Maleshane, 2012:48). Horwood *et al*. (2009:6) also found that due to staff shortages, IMCI could not be implemented properly in KZN and the Limpopo province

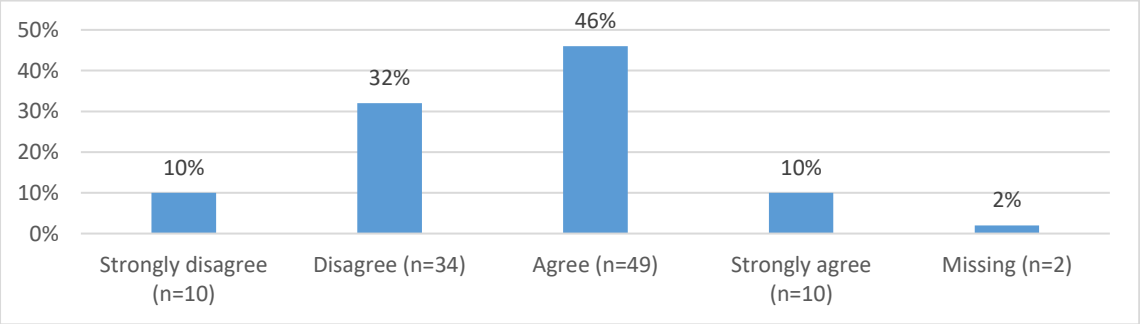

Figure 4.11: Staff numbers are conducive to IMCI implementation

4.4.3 Question 3: The budget allows for IMCI training, e.g. new employees, updates and refresher training (n = 103)

As shown in Table 4.2, the majority 46 (44%) of the participants agreed that the budget allows for IMCI training, 10 (10%) strongly agreed, 35 (33%) disagreed, 12 (11%) strongly disagreed, while two (2%) participants did not answer the question

Kiplagat *et al.* (2014:5) found that there is no budget in Tanzania for IMCI follow-up training and supportive supervision. Fortunately, the SAMHS is privileged in that in the Gauteng province, members from the SAMHS are invited on a regularly basis to attend refresher courses and workshops, which are paid from the budget of the National DOH.

Table 4.2: Budget allows for IMCI training

	Frequency	Percentage
Strongly disagree	12	11%
Disagree	35	33%
Agree	46	44%
Strongly agree	10	10%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.4 Question 4: Adequate numbers of IMCI-trained staff are available (n = 103)

As shown in Figure 4.12, most participants 45 (43%) disagreed with the statement that adequate numbers of IMCI-trained staff are available, 17 (16%) strongly disagreed with the statement, while 35 (33%) agreed and six (6%) strongly agreed that there are enough IMCI-trained staff. Two (2%) participants did not provide an opinion.

Many participants commented about the shortage of staff and need for training, refresher courses, symposiums and workshops to strengthen the training. In a study conducted in Limpopo and KZN, the participants also recommended that more follow-up visits and IMCI update workshops be held (Horwood *et al.*, 2009:8). Refresher courses, workshops and symposiums offered by the DOH are usually limited to a total of two to five SAMHS members per course, and the clinics utilise these opportunities to the fullest, but unfortunately it means that not everybody get the opportunity to attend. There are no refresher courses offered by the Nursing College and SAMHS members depend on the opportunities offered by the DOH. According to Fick (2017:209), the availability of skilled clinicians to provide PHC remains challenging in South Africa because of inadequate staff numbers, high staff turnover and rotation of IMCI-trained staff.

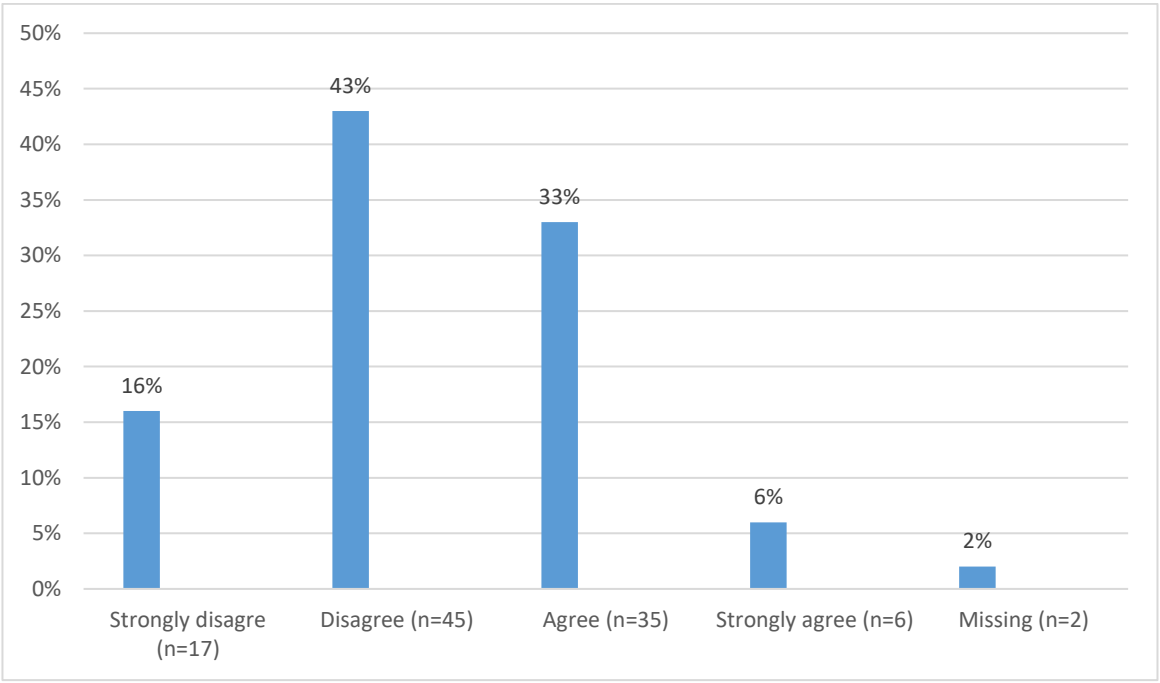

Figure 4.12: Adequate numbers of IMCI-trained staff are available

4.4.5 Question 5: Training schedules are available (n = 103)

As shown in Figure 4.13, 16 (15%) participants strongly disagreed with the statement that training schedules are available, 34 (32%) disagreed, 47 (45%) agreed and six (6%) strongly agreed that training schedules are available, while two (2%) participants did not offer their opinion.

The benefit of having training schedules available include proper planning, as SAMHS members who will be attending the training know well in advance when they will not be at work, hence the workload can be divided beforehand.

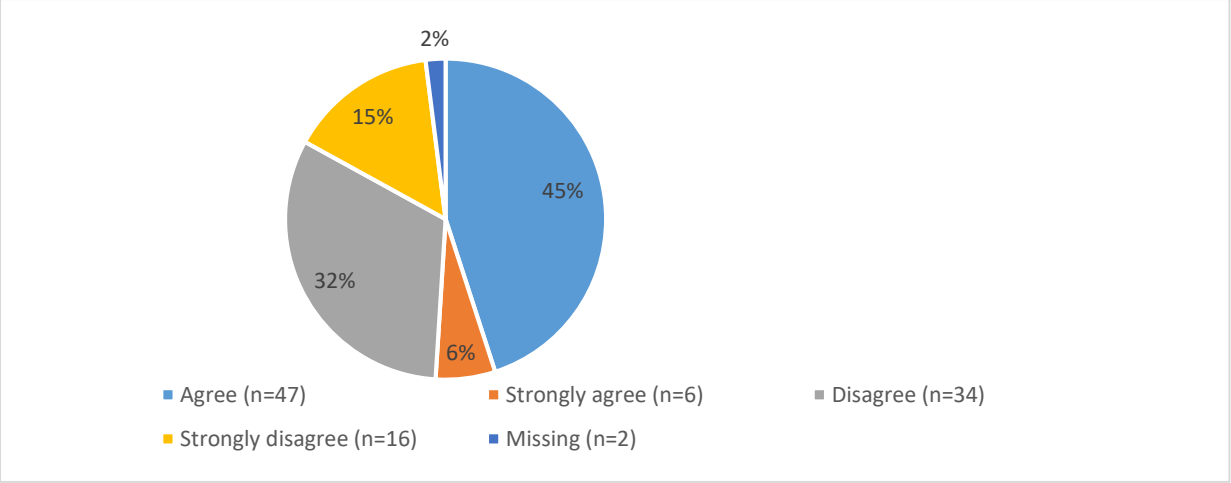

Figure 4.13: Training schedules are available

4.4.6 Question 6: Supervisory support or on-site mentoring is available to complement the theoretical training (n = 103)

As evident from Table 4.3, 17 (16%) participants strongly disagreed with the statement that supervisory support or on-site mentoring is available to complement the theoretical training, 39 (37%) disagreed with the statement, 38 (36%) agreed and nine (9%) strongly agreed. Two participants (2%) did not complete the question.

One of the participants commented that more supervision should be made available. This correlates with the study in Limpopo and KZN, where the participants raised a concern that there was no ongoing clinical supervision. Supervision can bridge the gap between knowledge and practice (Horwood *et al*., 2009:5), and a trained supervisor helps health workers overcome problems and make the most of their training (WHO, 1999:5), while lack of supervision can lead to a loss of skills (Horwood *et al*., 2009:5).

Table 4.3: Supervisory support available to complement theoretical training

	Frequency	Percentage
Strongly disagree	17	16%
Disagree	39	37%
Agree	38	36%
Strongly agree	9	9%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.7 Question 7: IMCI guidelines are available (n = 103)

As shown in Table 4.4, most of the participants 51 (48%) agreed and 27 (26%) strongly agreed with the statement on the availability of IMCI guidelines, while 16 (15%) disagreed and nine

(9%) participants strongly disagreed that IMCI guidelines are available. Again, two (2%) participants did not respond to the question.

One of the participants indicated that IMCI guidelines are not available and that military members use their own IMCI guidelines received during training. In the SAMHS, members received guidelines from the DOH. These guidelines were distributed to all the clinics, but during the staff visits it was found to be locked away in the RN in charges office and not available in the consulting rooms.

IMCI practitioners classify the child's illness according to severity using a series of algorithms, from which specific treatments are identified (Horwood *et al*., 2009:7). IMCI training learning materials are developed by WHO and all course participants receive a chart booklet containing the IMCI guidelines to use as a desk reference (Horwood *et al*., 2009:8). Participants in a study in Tanzania also indicated that there is not an adequate supply of updated IMCI chart booklets and guidelines (Kiplagat *et al*., 2014:7).

Table 4.4: Availability of IMCI guidelines

	Frequency	Percentage
Strongly disagree	9	9%
Disagree	16	15%
Agree	51	48%
Strongly agree	27	26%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.8 Question 8: IMCI wall charts are available (n = 103)

As shown in Figure 4.14, 19 (18%) of the participants strongly disagreed and 35 (33%) disagreed that IMCI wall charts are available, while 40 (38%) agreed and nine (9%) strongly agreed that wall charts are available. Two (2%) participants did not answer the question. Many of the participants indicated that IMCI charts are not available and none were seen during staff visits.

In order to enhance IMCI training, the WHO compiled a set of four wall charts that describe IMCI case management guidelines, which can be utilised at first-level facilities. Topics of the charts are as follows:

- Assess and classify the sick child aged two months up to five years
- Treat the child
- Counsel the mother
- Assess and classify the sick young infant. (WHO, 1999:4)

Adekanye and Odetola (2014:13) found that IMCI implementation was affected by inadequate professional aids such as wall charts.

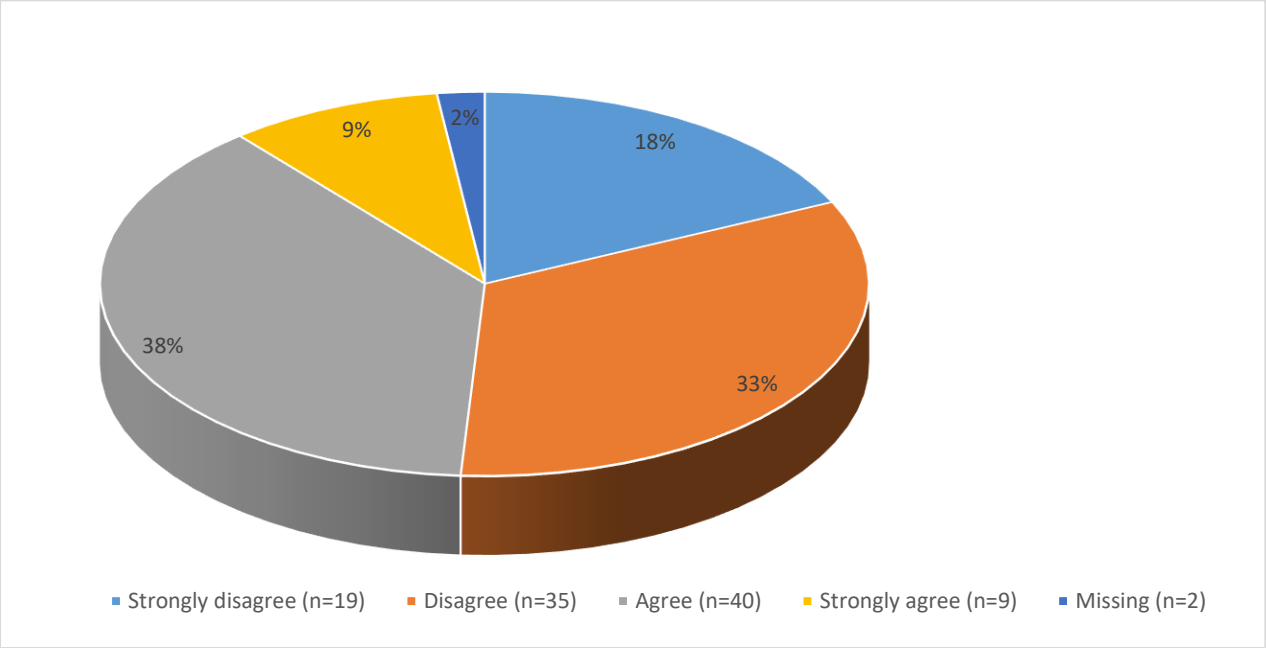

Figure 4.14: IMCI wall available

4.4.9 Question 9: Essential medicines are in stock (n = 103)

As shown in Table 4.5, most of the participants 61 (58%) agreed and 16 (15%) strongly agreed that essential medicines are in stock, while only eight (8%) strongly disagreed and 18 (17%) disagreed with the statement. Again, two (2%) participants did not answer the question

Some participants commented that essential medicines are not in stock and that medicine is prescribed according to what is available in the pharmacy. This is in line with a study conducted in the Limpopo province, where the participants indicated the shortage of medicine as a major barrier to the implementation of IMCI (Vhuromo & Davhana-Maselese, 2009:60). A study conducted in Ethiopia showed that common medicines for treatment of infectious children disease are unavailable due to a lack of focuses from the government policy (Sado & Sufa, 2016:7). A shortage of supplies and essential medicine, especially for treating pneumonia, diarrhoea and malaria, was identified as a major challenge in IMCI implementation in Tanzania (Kiplagat *et al.*, 2014:7). In the North West province, the lack of IMCI medicine was identified as a challenge in the implementation of the IMCI strategy (Maleshane, 2012:45).

Table 4.5: Essential medicine in stock

	Frequency	Percentage
Strongly disagree	8	8%
Disagree	18	17%
Agree	61	58%
Strongly agree	16	15%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.10 Question 10: Immunisations are available (n = 103)

Most participants 61 (58%) agreed and 30 (28%) strongly agreed that immunisations are available, while only three (3%) strongly disagreed and nine (9%) disagreed with the statement, as seen in Figure 4.15. Two (2%) participants did not answer the question.

One of the participants commented that there no immunisations are done at 1 Military Hospital; children who need immunisations are sent to the nearest sickbay.

South Africa's Expanded Programme on Immunisation requires immunisation services to be available at all service delivery points such as clinics, community health centres and hospitals (Jonker & Stellenberg, 2014:5). In a study conducted in the Cape Metropolitan area, mothers indicated that the RTHB might be checked, but due to staffing problems, they were referred to the clinic (Jonker & Stellenberg, 2014:5). According to the IMCI training course, students are taught that if a child should be immunised, the health worker must give the immunisation (WHO, 1999:3). According to Jonker and Stellenberg (2014:2), fewer opportunities are missed if immunisation and nutrition services are available all day, rather than for limited period of the week.

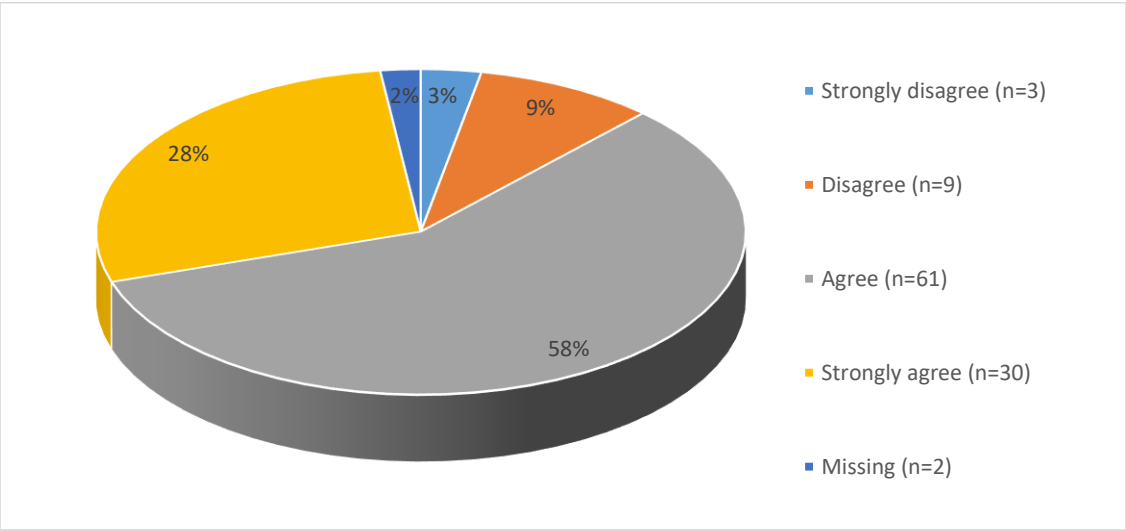

Figure 4.15: Immunisations are available

4.4.11 Question 11: The required equipment is available (n = 103)

As seen in Figure 4.16, most participants 66 (63%) agreed and 12 (11%) strongly agreed that the required equipment is available, but 24 (23%) disagreed and one (1%) participant strongly disagreed with the statement. Two (2%) of the participants did not answer the question.

Although the majority of the participants stated that the required equipment is available, some commented that the basic equipment, for example stethoscopes and ear, nose and throat sets, are not available, and that it is expected of them to utilise their own equipment when rendering after-hours services.

Except for the study in Limpopo, where participants indicated that there are no scales available, the researcher could not find any other studies that addressed equipment (Vhuromo & Davhana-Maselese, 2009:60).

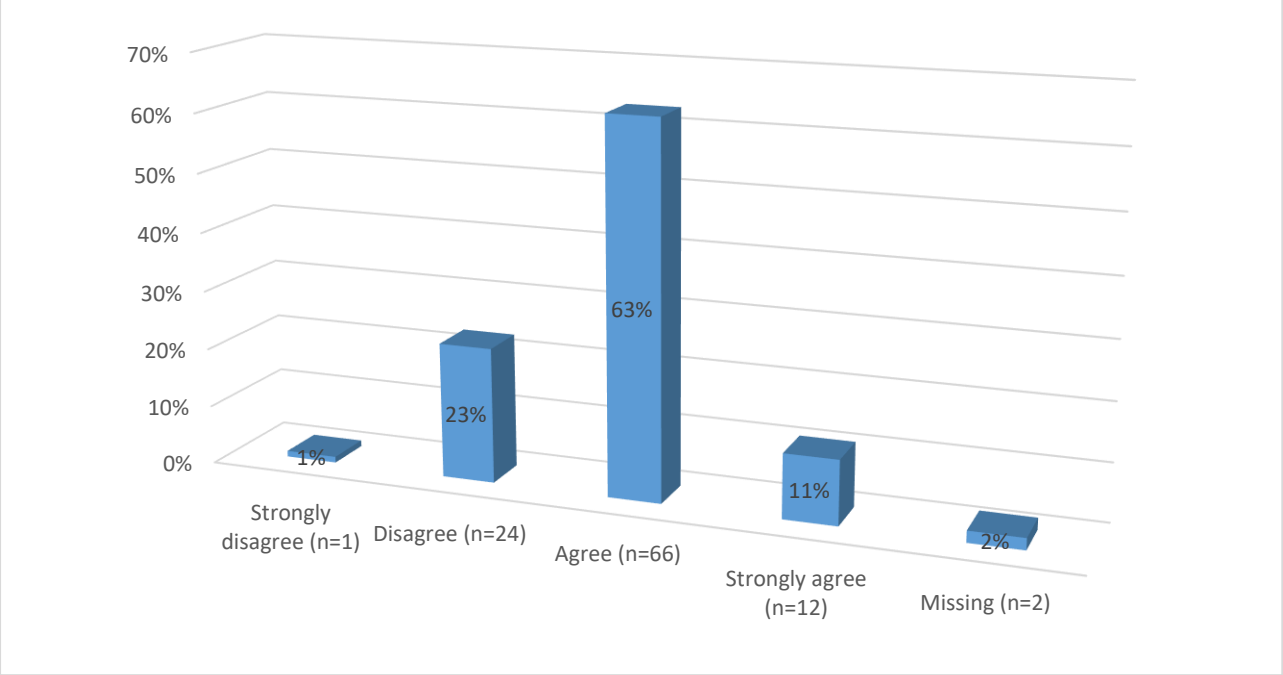

Figure 4.16: The required equipment is available

4.4.12 Question 12: Equipment is in a working condition (n = 103)

Table 4.6 shows that the majority of the participants 61 (58%) agreed and 12 (11%) strongly agreed that equipment is in a working condition, while 27 (26%) disagreed and three (3%) strongly disagreed with the statement, and two (2%) participants offered no opinion.

Table 4.6: Equipment is in a working condition

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	27	26%
Agree	61	58%
Strongly agree	12	11%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.13 Question 13: Consumables/supplies are in stock (n = 103)

As seen in Table 4.7, 50 (47%) participants agreed and nine (9%) strongly agreed that consumables/supplies are in stock, while 38 (36%) disagreed and six (6%) strongly disagreed with the statement. Two (2%) participants did not answer the question.

In Tanzania, ORS, cups and buckets are frequently unavailable, and this discourages healthcare workers from implementing IMCI in the workplace (Kiplagat *et al*., 2014:8–9).

Table 4.7: Consumables/supplies are in stock

	Frequency	Percentage
Strongly disagree	6	6%
Disagree	38	36%
Agree	50	47%
Strongly agree	9	9%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.14 Question 14: Clinic space is adequate for IMCI activities (n = 103)

The majority of the participants 52 (49%) agreed and 12 (11%) strongly agreed that the clinic space is adequate for IMCI activities, while 31 (30%) disagreed and eight (8%) strongly disagreed with the statement, and two (2%) participants did not respond to the question.

Some of the participants commented that the clinic space is too small, and others felt that if there is more space in the clinics, IMCI activities will be done better. This is similar to the findings of the study in Limpopo, where the participants indicated that the clinics are very small and there are not enough rooms to accommodate the services rendered at the clinic. In addition, they indicated that there are no separate rooms for counselling and no suitable place for the preparation of a dehydration corner (Vhuromu & Davhana-Maselese, 2009:65). In the study conducted in the North West province, Registered nurses in PHC facilities expressed challenges to implementing the IMCI strategy due to a lack of physical space in the facilities (Maleshane, 2012:44).

Table 4.8: Clinic space is adequate for IMCI activities

	Frequency	Percentage
Strongly disagree	8	8%
Disagree	31	30%
Agree	52	49%
Strongly agree	12	11%
Missing data	2	2%
Total	**n=105**	**100%**

4.5 SECTION C: CASE MANAGEMENT SKILLS

This section refers to the data on case management skills and includes information on utilisation of standardised IMCI checklists, completion of the checklists, immunisations, administering of vitamin A and deworming medicine, follow-up assessments, health education, treatment and completion of documentation.

4.5.1 Question 15: Staff utilise the standardised IMCI checklists (e.g. children aged two months up to five years) (n = 103)

As shown in Figure 4.17, 15 (14%) of the participants strongly disagreed and 43 (41%) disagreed that staff utilise the standardised IMCI checklists, while 37 (35%) agreed and eight (8%) strongly agreed with the statement. Once again, two (2%) participants did not answer the question.

In a study evaluating IMCI implementation in South Africa 20 years after implementation, it was reported that doctors and nurses with special PHC training frequently view IMCI as an inferior strategy for case management (Fick, 2017:209). According to Fick (2017:207), limited practice of the strategy by IMCI-trained professionals and poor clinician adherence to IMCI guidelines are problems in South Africa. Practitioners in Tanzania (Kiplagat *et al*., 2014:277) and in Kenya (Silali, 2014:105) criticise IMCI as too simplistic. In Limpopo and KZN, participants described IMCI as time-consuming (Horwood *et al*., 2009:7). Long queuing and limited time to attend to overcrowded patients in the clinic were identified in the North West province as major challenges to implementing the IMCI strategy (Maleshane, 2012.47).

The participants indicated that although they utilise the IMCI checklists, they are not captured, and they suggested that administrative staff be trained on the importance of IMCI and that the military adjust the normal consultation form to include the IMCI checklist. Others indicated that they do not use the checklists at all, as they utilise the Subjective, Objective, Assessment and Plan approach (also called the SOAP approach) in assessing children, while some indicated that they complete it together with the normal consultation forms that are in use and attach both forms together.

One of the Medical practitioners commented that although IMCI was integrated in their training and that they keep the principles in the back of their heads when assessing children, they do not follow the checklist to the letter One of the participants felt that IMCI is not practised in the military, while another one indicated that registered nurses are not allowed to assess and treat any children in 1 Military Hospital. Many participants believed that IMCI is time-consuming and not effective

In a study conducted in Nigeria it was found that nurses had to improvise materials when taking care of sick children (Adekanye & Odetola, 2014:33).

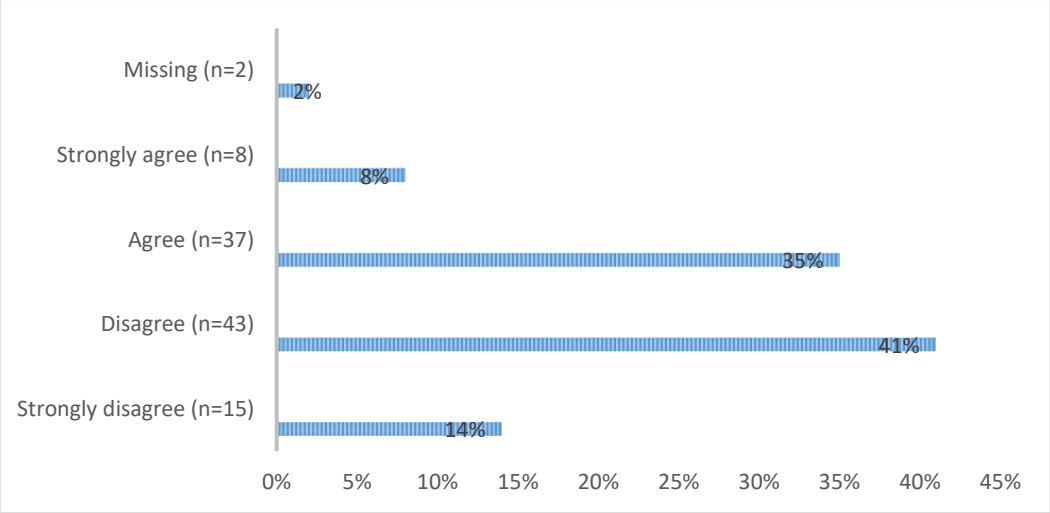

Figure 4.17: Staff utilise the standardised IMCI checklists

4.5.2 Question 16: Personal information is noted on the IMCI checklist (n = 103)

As shown in Table 4.9, the majority of the participants 42 (40%) agreed and 13 (13%) strongly agreed with the statement that personal information is noted on the IMCI checklist, while 34 (32%) disagreed and 14 (13%) strongly disagreed with the statement and two (2%) participants offered no opinion.

Each patient has a personal file where all medical information is recorded and filed. This record is compiled and maintained by the healthcare provider and can be handwritten or electronic. Personal information is needed to identify the correct client and is also essential for continuous care. It is also a legal requirement to keep complete records that include personal information.

Table 4.9: Personal information is noted on the IMCI checklist

	Frequency	Percentage
Strongly disagree	14	13%
Disagree	34	32%
Agree	42	40%
Strongly agree	13	13%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.3 Question 17: The date of the visit is documented (n = 103)

An overwhelming majority of the participants 70 (66%) agreed and 23 (22%) strongly agreed that the date of the visit is documented. Only seven (7%) strongly disagreed and three (3%) disagreed with the statement, while two (2%) participants did not answer the question.

The IMCI checklist is a legal document. All legal documents should have a date. This can also assist other healthcare workers when the client is seen again to determine what treatment the client received on a specific date. According to the Health Professions Council of South Africa (HPCSA), it is compulsory to record the date of the visit (HPCSA, 2008:6).

Table 4.10: The date of the visit is documented

	Frequency	Percentage
Strongly disagree	7	7%
Disagree	3	3%
Agree	70	66%
Strongly agree	23	22%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.4 Question 18: Initial or follow-up visit is marked (n = 103)

As shown in Table 4.11, most of the participants 63 (60%) agreed and 21 (20%) strongly agreed that the initial or follow-up visit is marked. Only 12 (11%) disagreed and seven (7%) strongly disagreed with the statement; two (2%) participants did not answer the question.

A follow-up visit indicates that the child already received treatment and that the condition is not yet cleared up, the condition has worsened or something else is wrong with the child. Monthly statistics should be kept on how many children were seen in each clinic, which include whether it was the first (initial) visit or a follow-up visit.

Table 4.11: Initial or follow-up visit is marked

	Frequency	Percentage
Strongly disagree	7	7%
Disagree	12	11%
Agree	63	60%
Strongly agree	21	20%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.5 Question 19: Vital signs are recorded (n = 103)

The majority of the participants 67 (63%) agreed and 30 (29%) strongly agreed that vital signs are recorded, while four (4%) strongly disagreed and two (2%) disagreed with the statement, as shown in Table 4.12). Two (2%) participants did not respond to the question.

According to the standardised IMCI checklist (DOH, 2014:4), the temperature of all children under the age of five should be recorded. Other vital signs that should be recorded when the SAMHS consultation form is utilised include heart rate (pulse), respiration and blood pressure.

Table 4.12: Vital signs are recorded

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	2	2%
Agree	67	63%
Strongly agree	30	29%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.6 Question 20: Weight is documented (n = 103)

As shown in Table 4.13, most of the participants 68 (64%) agreed with the statement what weight is recorded, while 30 (29%) strongly agreed, three (3%) strongly disagreed and two (2%) disagreed with the statement; two (2%) participants did not respond to the question.

Most of the participants in other studies are able to weigh children, except the participants in the study in Limpopo, who raised a concern about not having material resources such as scales (Vhuramo & Davhana-Maselese, 2009:65). In a study conducted in KZN it was found that all children were routinely weighed (Horwood, Butler, Vermaak, Rollins, Haskins, Nkosi, Torsten, Neilands & Qazi, 2010:43).

Weight is important to determine whether children are growing well or not. Weight is also needed when medicine dosage is calculated. Weight for age, length for age, weight for height

as well as mid-upper arm circumference should be recorded in the RTHB with each visit to the clinic.

Table 4.13: Weight is documented

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	2	2%
Agree	68	64%
Strongly agree	30	29%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.7 Question 21: The main problem is identified (n = 103)

The majority of the participants 69 (65%) agreed and 27 (26%) strongly agreed that during history taking, the main problem is identified. Only a few participants (4; 4%) disagreed and three (3%) strongly disagreed with the statement, as shown in Table 4.14. Two (2%) participants did not answer the question.

The main problem refers to the main reason why the mother or caregiver brought the child to the clinic. It can be for a routine check-up and immunisation, or for illness. Many participants indicated that the main problem is identified due to the SOAP approach, which is used by means of the normal consultation forms available in the military.

Table 4.14: The main problem is identified

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	4	4%
Agree	69	65%
Strongly agree	27	26%
Missing data	2	2%
Total	n=105	100%

4.5.8 Question 22: Additional problems are identified (n = 103)

As shown in Table 4.15, most of the participants 74 (70%) agreed and 22 (21%) strongly agreed that during the history taking, additional problems are identified, while four (4%) disagreed and three (3%) strongly disagreed with the statement, and two (2%) participants did not answer the question.

Many participants stated that they use the SOAP approach, where they start with the main complaint and then address additional problems that the client might have. Additional problems are not the main reason why the mother or caregiver brought the child to the clinic

but are different problems that can be addressed. An example is when the child should receive routine immunisation, but upon history taking the mother or caregiver might mention that the child is not responding to sound. This is then something additional that should be examined by the healthcare worker. Students are also taught to always ask whether there is anything else that the client needs and if there is a positive response, this is recorded and treated as an additional problem.

Table 4.15: Additional problems are identified

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	4	4%
Agree	74	70%
Strongly agree	22	21%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.9 Question 23: Danger signs are identified (n = 103)

As shown in Table 4.16, most of the participants 55 (52%) agreed and 29 (28%) strongly agreed that danger signs are identified, while 15 (14%) disagreed and four (4%) strongly disagreed that they identify the danger signs, such as vomiting and lethargy. Two (2%) participants did not answer the question.

Some of the participants indicated that in 1 Military Hospital they are not allowed to assess any children; all children are to be referred to the Medical practitioner. A few participants from the clinics also indicated that in their clinics, all children under the age of two are referred to the hospital and are not seen in the clinic.

According to the IMCI guidelines, all children should be assessed for general danger signs, where the health practitioner asks the mother or the caregiver whether the child is able to drink or breastfeed, whether the child is vomiting or whether the child had convulsions during the illness. Thereafter, the health practitioner must check whether the child is lethargic or unconscious and whether the child is convulsing (DOH, 2014:25)

Table 4.16: Danger signs are identified

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	15	14%
Agree	55	52%
Strongly agree	29	28%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.10 Question 24: Children with danger signs are referred to a higher level of care (n = 103)

The majority of the participants 62 (59%) agreed and 28 (26%) strongly agreed that children with danger signs are referred to a higher level of care, while nine (9%) participants disagreed and four (4%) strongly disagreed with the statement, as seen in Table 4.17. Two (2%) participants did not respond to the question.

A child with any general danger sign needs to receive pre-referral treatment immediately and be referred as soon as possible (DOH, 2014:25). 1 Military Hospital is a referral hospital where clients are seen by specialists.

Mulaudzi (2015:90) found that all children received urgent pre-referral treatment at the clinics in Tshwane before referral to the hospital.

Table 4.17: Children with danger signs are immediately referred to a higher level of care

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	9	9%
Agree	62	59%
Strongly agree	28	26%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.11 Question 25: Children are checked for coughing or difficulty breathing (n = 103)

As shown in Table 4.18, most of the participants 65 (61%) agreed and 27 (26%) strongly agreed that they check for coughing or difficulty breathing. Eight (8%) participants disagreed and three (3%) strongly disagreed with the statement, while two (2%) did not answer the question.

Depending on the signs and symptoms, the child can be classified with severe pneumonia or very severe disease, pneumonia, cough or cold (DOH, 2014:26). The most common presenting complaints are coughing and difficult breathing (Horwood *et al*., 2010:45).

Table 4.18: Children are checked for coughing or difficulty breathing

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	8	8%
Agree	65	61%
Strongly agree	27	26%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.12 Question 26: Children are assessed for diarrhoea (n = 103)

Table 4.19 shows that the majority of the participants 62 (59%) agreed and 28 (26%) strongly agreed that children are assessed for diarrhoea. Only a few participants (10; 10%) disagreed and three (3%) strongly disagreed with the statement, while two (2%) participants offered no opinion.

Diarrhoea refers to frequent loose or watery bowel movement that deviates from a child's normal pattern (Porter, Kaplan & Homeir, 2011:107). During the IMCI assessment, the child will be classified with severe persistent diarrhoea if dehydration is present or the child is losing weight (DOH, 2014:27).

In a study on the disease profile of children in South Africa, it was found that children with diarrhoea were assessed for dehydration according to the presence or absence of four signs: the child's general condition, how the child is drinking, skin turgor and sunken eyes (Horwood *et al*., 2010:46).

Table 4.19: Children are assessed for diarrhoea

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	10	10%
Agree	62	59%
Strongly agree	28	26%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.13 Question 27: Children are monitored for signs of fever (n = 103)

As shown in Table 4.20, most of the participants 65 (61%) agreed and 30 (29%) strongly agreed that children are monitored for signs of fever, while five (5%) participants disagreed and three (3%) strongly disagreed with the statement. Two (2%) participants did not answer the question.

Fever is a temperature of 37.5 °C or above (DOH, 2014:28). Fever might be an indication of meningitis or other illnesses, such as TB, malaria or measles (DOH, 2014:28).

Table 4.20: Children are monitored for signs of fever

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	5	5%
Agree	65	61%
Strongly agree	30	29%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.14 Question 28: Children are screened for ear infections (n = 103)

As shown in Table 4.21, the majority of the participants 63 (60%) agreed, 25 (24%) strongly agreed, 12 (11%) disagreed and three (3%) strongly disagreed agreed that children are screened for ear problems. Two (2%) participants did not answer the question.

Ear problems are identified as follows (DOH, 2014:30):

- Tender swelling behind the ear: mastoiditis
- Pus draining from the ear for less than 14 days or ear pain that wakes the child at night: acute ear infection
- Pus draining from the ear for 14 days and more: chronic ear infection.

Table 4.21: Children are screened for ear infections

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	12	11%
Agree	63	60%
Strongly agree	25	24%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.15 Question 29: Children are monitored for sore throats (n = 103)

As shown in Table 4.22, most of the participants 63 (60%) agreed and 21 (20%) strongly agreed that children are monitored for sore throats, while 16 (15%) disagreed and three (3%) strongly disagreed with the statement and two (2%) offered no opinion.

A sore throat with a runny nose, cough, rash or conjunctivitis will be classified as a sore throat only, but if there is no runny nose, no cough, no rash and no conjunctivitis, it might be an indication of a possible streptococcal infection (DOH, 2014:30).

Table 4.22: Children are monitored for sore throats

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	16	15%
Agree	63	60%
Strongly agree	21	20%
Missing data	2	2%
Total	**n=105**	**100%**

4.4.16 Question 30: Children are screened for signs of malnutrition (n = 103)

An overwhelming number of participants 65 (61%) agreed and 24 (23%) strongly agreed that children are screened for signs of malnutrition, as shown in Table 4.23. Only nine (9%) of the participants disagreed and five (5%) strongly disagreed with the statement, while again, two (2%) participants did not answer the question.

The child should be weighed, and the weight must be plot on the RTHB. When the child is losing weight or unsatisfactory weight gain it is an indication of not growing well, while oedema on both feet or very low weigh for age and any danger sign may be an indication of severe acute malnutrition with medical complications (DOH, 2014:31).

Table 4.23: Children are screened for signs of malnutrition

	Frequency	Percentage
Strongly disagree	5	5%
Disagree	9	9%
Agree	65	61%
Strongly agree	24	23%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.17 Question 31: Feeding problems are identified (n = 103)

As shown in Table 4.24, the majority of the participants 77 (74%) agreed and 11 (10%) strongly agreed that feeding problems are identified, while 11 (10%) disagreed and four (4%) strongly disagreed with the statement, and two (2%) did not offer an opinion.

Feeding problems are present when the infant is not well attached to the breast, is not suckling effectively, has had fewer than eight breastfeeds in 24 hours or is taking foods or drinks other than breastmilk or present with thrush (DOH, 2014:9).

Table 4.24: Feeding problems are identified

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	11	10%
Agree	77	74%
Strongly agree	11	10%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.18 Question 32: Children are assessed for signs of anaemia (n = 103)

As shown in Table 4.25, most of the participants 74 (70%) agreed and 15 (14%) strongly agreed that children are assessed for signs of anaemia. Ten (10%) participants disagreed and four (4%) strongly disagreed with the statement, and two (2%) participants did not respond to the question.

All children should be assessed for palmar pallor; if present, the haemoglobin (Hb) level should be checked. A child is classified with severe anaemia when severe palmar pallor or Hb < 7g/dl is present and classified with anaemia when some palmar pallor or Hb between 7g/dl and 10g/dl is present. If no pallor is seen, no anaemia is present (DOH, 2014:32).

Table 4.25: Children are assessed for signs of anaemia

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	10	10%
Agree	74	70%
Strongly agree	15	14%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.19 Question 33: Children are screened for signs and symptoms of HIV infection (n = 103)

As seen in Table 4.26, the majority of the participants 72 (68%) agreed and 19 (18%) strongly agreed that children are screened for signs and symptoms of HIV infection, while eight (8%) disagreed and four (4%) strongly disagreed with the statement. Two (2%) participants did not respond to the question.

According to the IMCI guidelines (DOH, 2014:33), all children should be checked for HIV infection. Signs of HIV infection include the following:

- Signs of pneumonia
- Persistent diarrhoea at present or in the past three months
- Ear discharge

- Low weight
- Unsatisfactory weight gain
- Enlarged lymph glands in two or more of the following sites: neck, axilla or groin
- Oral thrush
- Parotid enlargement.

Some children would have been tested for HIV at birth and if the test was negative, the child should be re-tested when ill or if signs of HIV infection are present. In addition, children should be tested at six weeks of age for infants who received extended Nevirapine at 16 weeks, six weeks after stopping breastfeeding and at 18 months of age (DOH, 2014:33).

According to Mulaudzi (2015:92), were very few children are assessed for HIV status in Tshwane.

Table 4.26: Children are screened for signs and symptoms of HIV infection

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	8	8%
Agree	72	68%
Strongly agree	19	18%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.20 Question 34: Staff checked for signs and symptoms of TB (n = 103)

As shown in Table 4.27, most of the participants 64 (61%) agreed, while 18 (17%) strongly agreed that staff checked for signs and symptoms of TB. Fourteen (13%) participants disagreed and seven (7%) strongly disagreed with the statement, and two (2%) offered no opinion.

All children should be classified for TB risk by first asking whether the child has been in contact with TB in the past 12 months as well as asking the following screening questions:

- Coughing for more than two weeks?
- Fever for more than seven days?
- Not growing well?

If the child was in contact with TB and the answer is yes to any of the above questions, a full TB assessment will be done where sputum will be sent for culture, and a tuberculin skin test and X-rays will be taken, if available (DOH, 2014:34).

Table 4.27: Staff checked for signs and symptoms of TB

	Frequency	Percentage
Strongly disagree	7	7%
Disagree	14	13%
Agree	64	61%
Strongly agree	18	17%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.21 Question 35: Road to Health Booklets are checked for any missing immunisations (n = 103)

As shown in Table 4.28, most of the participants 67 (63%) agreed and 29 (28%) strongly agreed that the RTHBs are checked for any missing immunisations, while four (4%) participants strongly disagreed and three (3%) disagreed with the statement, and two (2%) did not answer the question.

One of the participants commended that the RTHB should be redesigned to be IMCI-friendly.

On each visit, the child's immunisation status should be checked, and routine treatment given and recorded in the RTHB. If the child does not have an RTHB on the day of the visit, he/she should get a new one (DOH, 2014:35).

Table 4.28: Road to Health Booklets are checked for any missing immunisations

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	3	3%
Agree	67	63%
Strongly agree	29	28%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.22 Question 36: Immunisations are given on the day of the visit (n = 103)

As seen in Table 4.29, most of the participants 53 (50%) agreed and 24 (23%) strongly agreed that immunisations are given on the day of the visit, while 20 (19%) disagreed and six (6%) strongly disagreed with the statement, and two (2%) did not answer the question.

Some participants indicated that no immunisations are done at 1 Military Hospital. All children are sent to the nearest sickbays for immunisations, while some of the participants from the clinics mentioned that immunisations are done only on specified days at the clinics and not every day, similar to a study done in the Cape Metropolitan area, where it was found that

immunisation services were not offered at the hospitals and private practitioners, mothers were referred to the clinics (Jonker & Stellenberg, 2014:5).

According to the IMCI guidelines (DOH, 2014:35), all missed immunisations should be given when detected, including for sick children and those without an RTHB.

Table 4.29: Immunisations are given on the day of the visit

	Frequency	Percentage
Strongly disagree	6	6%
Disagree	20	19%
Agree	53	50%
Strongly agree	24	23%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.23 Question 37: Vitamin A is given on the day of the visit, should it be required (n = 103)

As shown in Table 4.30, most of the participants 57 (54%) agreed and 25 (24%) strongly agreed that vitamin A is given on the day of the visit, should it be required, while 16 (15%) disagreed and five (5%) strongly disagreed with the statement, and two (2%) participants did not respond to the question.

Although many participants indicated that vitamin A is given, many also indicated that vitamin A is very often out of stock and then not given as it should. In Tshwane, the administration of vitamin A, after more than 10 years since its recommended implementation, is still very low (Mulaudzi, 2015:92).

Vitamin A should be given routinely to all children from the age of six months to prevent severe illness (DOH, 2014:35).

Table 4.30: Vitamin A is given on the day of the visit, should it be required

	Frequency	Percentage
Strongly disagree	5	5%
Disagree	16	15%
Agree	57	54%
Strongly agree	25	24%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.24 Question 38: Deworming is done on the day of the visit, should it be required (n = 103).

As shown in Table 4.31, most of the participants 63 (60%) agreed and 26 (24%) strongly agreed that deworming is done on the day of the visit, should it be required, while 10 (10%) participants disagreed and four (4%) strongly disagreed with the statement. Two (2%) participants did not answer the question.

Children older than one year of age should receive routine deworming treatment every six months (DOH, 2014:35).

Table 4.31: Deworming is done on the day of the visit

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	10	10%
Agree	63	60%
Strongly agree	26	24%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.25 Question 39: A follow-up date is provided where necessary (n = 103)

As shown in Table 4.32, most of the participants 76 (72%) agreed, 22 (21%) strongly agreed, three (3%) strongly disagreed and two (2%) disagreed that follow-up dates are provided where necessary. Two (2%) participants did not offer an opinion.

All sick young infants should be given follow-up care to assess the problem, and if there is a new problem, it should be assessed, classified and treated (DOH, 2014:16).

Table 4.32: Follow-up dates are provided where necessary

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	2	2%
Agree	76	72%
Strongly agree	22	21%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.26 Question 40: Mothers/caregivers are informed to return immediately should it be necessary (n = 103)

As shown in Table 4.33, most of the participants 69 (65%) agreed, 27 (26%) strongly agreed, four (4%) disagreed and three (3%) strongly disagreed that mothers/caregivers are informed to return immediately should it be necessary, and two (2%) participants did not respond.

Health workers should teach mothers or caretakers how to recognise signs that indicate that the child should return immediately to the health facility (WHO, 1999:3). According to the IMCI guidelines of 2014 (DOH, 2014:46), the mother or caregiver is advised to return immediately if any sick child becomes sicker, is not able to drink or breastfeed, has convulsions, vomits or develops a fever. If the child has a cough or cold, the child should also return if he/she experiences fast breathing, difficulty breathing or wheezing. If the child has diarrhoea, he/she should also return if there is blood in the stool or if the child is drinking poorly.

Table 4.33: Mothers/caregivers are informed to return immediately should it be necessary

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	4	4%
Agree	69	65%
Strongly agree	27	26%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.27 Question 41: Health education is provided with each visit (n = 103)

As shown in Table 4.34, most of the participants 79 (75%) agreed and 18 (17%) strongly agreed that health education is provided with each visit. Four (4%) participants strongly disagreed and two (2%) disagreed with the statement, while two (2%) participants offered no opinion.

On each visit, the healthcare worker should educate the mother or caregiver on feeding, when to return for the follow-up visit and how to care for the child. They should also educate the mother or caregiver about her own health, offer counselling if the mother or caregiver is HIV positive and teach her how to treat local infections (DOH, 2014:45–47).

Table 4.34: Health education is provided with each visit

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	2	2%
Agree	79	75%
Strongly agree	18	17%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.28 Question 42: Treatment is according to IMCI guidelines (n = 103)

As shown in Table 4.35, the majority of the participants 66 (63%) agreed and 17 (16%) strongly agreed that treatment is given according to the IMCI guidelines, while 12 (11%) disagreed and eight (8%) strongly disagreed with this statement, and two (2%) did not respond to the

question. These findings are similar to that of the study in Limpopo and KZN, where findings were classified according to IMCI guidelines (Horwood *et al*., 2010:43).

Table 4.35: Treatment is according to IMCI guidelines

	Frequency	Percentage
Strongly disagree	8	8%
Disagree	12	11%
Agree	66	63%
Strongly agree	17	16%
Missing data	2	2%
Total	**n=105**	**100%**

4.5.29 Question 43: Documentation of assessment and treatment is complete and accurate (n = 103)

As shown in Table 4.36, most of the participants 81 (77%) agreed and 11 (10%) strongly agreed that documentation of assessment and treatment is complete and accurate, while eight (8%) disagreed and three (3%) strongly disagreed with the statement. Two (2%) participants did not answer the question.

Medical records are legal documents and should always be complete and accurate. Complete and accurate medical records for minors under the age of 18 years should be kept until the minors' 21st birthday (HPCSA, 2008:7).

Table 4.36: Documentation of assessment and treatment is complete and accurate

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	8	8%
Agree	81	77%
Strongly agree	11	10%
Missing data	2	2%
Total	**n=105**	**100%**

4.6 SECTION D: IMCI BENEFITS

This section refers to the benefits of IMCI and includes data on the improvement of quality of care, case management skills of staff, accurate identification of childhood illnesses, referral of severely ill children, appropriate combined treatment of all major illnesses, reduction of under-five mortality, strengthening of counselling of the caregiver, budgetary benefits, improvement of family and community practice and improvement of the functioning of the health system.

4.6.1 Question 44: Improved quality of care (n = 103)

As shown in Figure 4.18, most of the participants 70 (66%) agreed and 23 (22%) strongly agreed that the IMCI strategy improved the quality of care, while seven (7%) disagreed and only three (3%) strongly disagreed with the statement. Two (2%) participants did not answer the question.

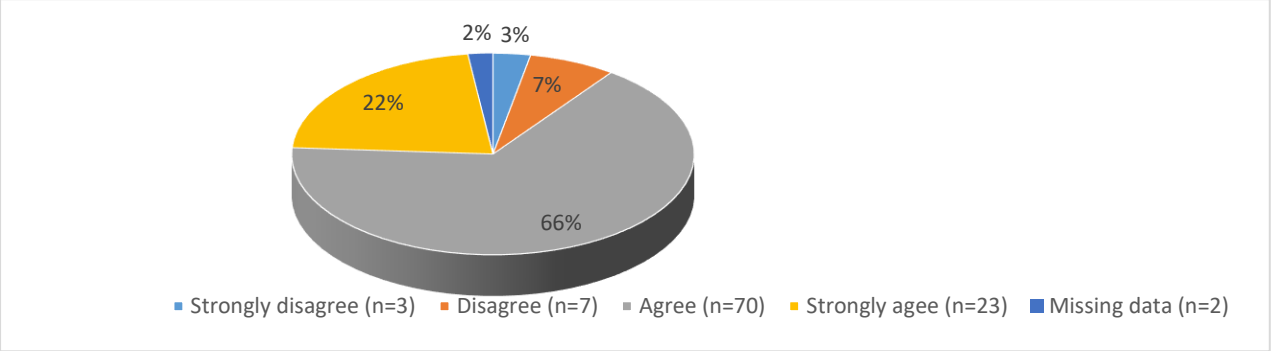

Figure 4.18: Improved quality of care

4.6.2 Question 45: Improved case management skills of staff (n = 103)

As shown in Figure 4.19, most of the participants 71 (67%) agreed, 23 (22%) strongly agreed, six (6%) disagreed and only three (3%) strongly disagreed that the IMCI strategy improved the case management skills of staff, while two (2%) participants offered no opinion.

In the study by Mulaudzi (2015:89), healthcare workers showed improved ability to assess signs of severe illnesses and treat sick children appropriately after they received IMCI training.

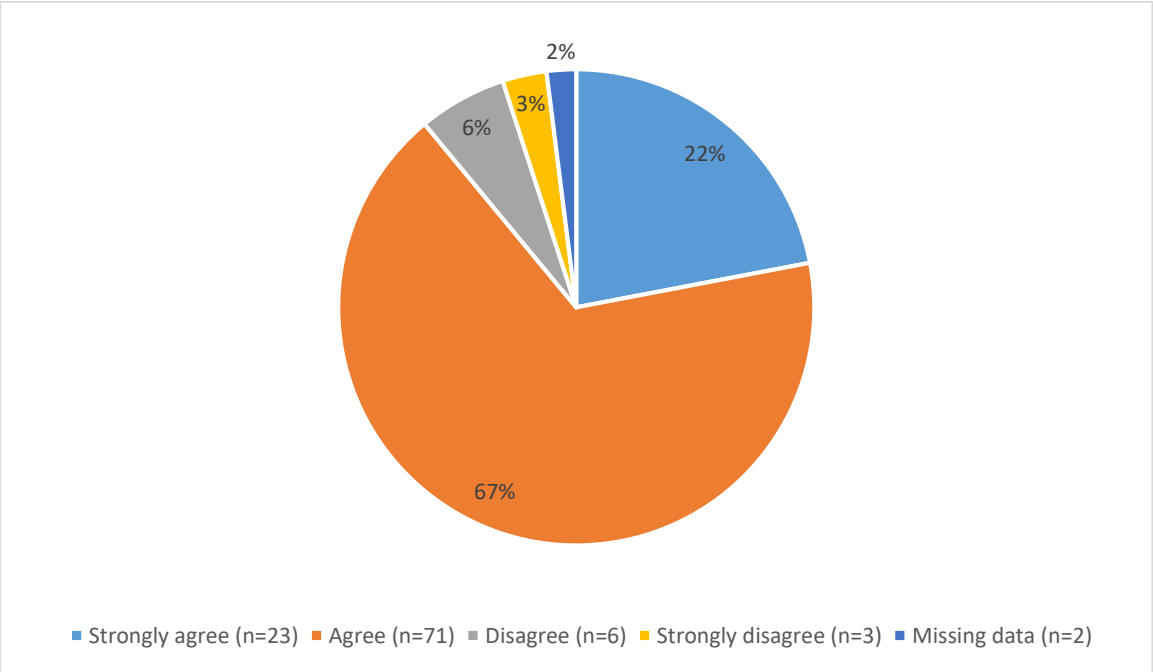

Figure 4.19: Improved case management skills of staff

4.6.3 Question 46: Ensures accurate identification of childhood illnesses on clinic level (n = 103)

As shown in Table 4.37, most of the participants 65 (61%) agreed and 28 (27%) strongly agreed that IMCI ensured accurate identification of childhood illnesses at clinic level, while seven (7%) disagreed and three (3%) strongly disagreed with the statement and two (2%) participants did not answer the question.

According to Mulaudzi (2015:92), IMCI guidelines are not always adhered to and IMCI classification of children referred from clinics to the hospital is often incorrect and incomplete.

Table 4.37: Ensures accurate identification of childhood illnesses at clinic level

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	7	7%
Agree	65	61
Strongly agree	28	27%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.4 Question 47: Speeds up the referral of severely ill children (n = 103)

As shown in Table 4.38, the majority of the participants 61 (58%) agreed and 33 (31%) strongly agreed that IMCI speeds up the referral of severely ill children. Six (6%) participants disagreed and three (3%) strongly disagreed with the statement, while two (2%) participants did not respond to the question.

Although the majority of the participants believed that IMCI speeds up the referral process of severely ill children in the AMHU GT clinics and 1 Military Hospital, the researcher could not find any other studies to determine whether this is also the case in the rest of the world.

Table 4.38: Speeds up the referral of severely ill children

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	6	6%
Agree	61	58%
Strongly agree	33	31%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.5 Question 48: Ensures appropriate combined treatment of all major illnesses (n = 103)

As shown in Table 4.39, most of the participants 74 (70%) agreed and 20 (19%) strongly agreed that IMCI ensured appropriate combined treatment of all major illnesses, while seven (7%) disagreed and two (2%) strongly disagreed with the statement, and two (2%) participants did not offer an opinion.

The Saving Children report of 2010–2011 identified failure to follow IMCI assessment and treatment guidelines and failure to recognise the severity of illness as modifiable factors responsible for the deaths of children in South Africa (Mulaudzi, 2015:89). According to Horwood *et al*. (2009:62), IMCI training showed improvements in health worker performance.

Table 4.39: Ensures appropriate combined treatment of all major illnesses

	Frequency	Percentage
Strongly disagree	2	2%
Disagree	7	7%
Agree	74	70%
Strongly agree	20	19%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.6 Question 49: Reduces under-five mortalities (n = 103)

As shown in Table 4.40, most of the participants 72 (68%) agreed and 20 (19%) strongly agreed that IMCI reduces under-five mortalities, while eight (8%) disagreed and three (3%) strongly disagreed with the statement. Two (2%) participants did not respond to the question.

Stellenberg *et al.* (2015:7) found that the IMCI approach can reduce morbidity and mortality in children under the age of age.

Table 4.40: Reduces under-five mortalities

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	8	8%
Agree	72	68%
Strongly agree	20	19%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.7 Question 50: Strengthens counselling of caregivers (n = 103)

As indicated in Table 4.41, most of the participants 78 (74%) agreed, 17 (16%) strongly agreed, six (6%) disagreed and two (2%) strongly disagreed that the counselling ability of caregivers is strengthened by IMCI. Two (2%) participants did not offer an opinion.

In the study done in Tshwane, Mulaudzi (2015:90) found that caregivers were counselled on the medical condition of the child, immunisations, how to administer treatment and how to recognise symptoms and signs that indicate when the child should return to the health facility.

Table 4.41: Improved counselling ability of caregivers

	Frequency	Percentage
Strongly disagree	2	2%
Disagree	6	6%
Agree	78	74%
Strongly agree	17	16%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.8 Question 51: Budgetary benefits (n = 103)

As shown in Table 4.42, most of the participants 76 (72%) agreed and 16 (15%) strongly agreed that IMCI offers budgetary benefits, while seven (7%) disagreed and four (4%) strongly disagreed with the statement and two (2%) did not respond to the question.

A study conducted in Tanzania showed that the IMCI approach changed prescription behaviour, which resulted in lower costs per child (Kosimbei, Hanson & English, 2011:3).

Table 4.42: Budgetary benefits

	Frequency	Percentage
Strongly disagree	4	4%
Disagree	7	7%
Agree	76	72%
Strongly agree	16	15%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.9 Question 52: Improved family and community practices (n = 103)

As shown in Table 4.43, most of the participants 81 (77%) agreed and 13 (12%) strongly agreed that family and community practices improved, while six (6%) disagreed and three (3%) strongly disagreed with the statement, and two (2%) did not answer the question.

One of the participants commented that she strongly believes that the implementation of IMCI will benefit the community considerably. One of the participants indicated that she feels the SANDF must educate its community members about IMCI, as parents at times do not accept what is required in the IMCI and they buy cough mixtures or return the child to see a second practitioner in another facility to get antibiotics, while many parents just demand antibiotics from the start. This is similar to the findings of the study in the North West province, where the mothers demanded medicine before leaving the consulting room and some mothers even threatened the Registered nurses with the media (Maleshane, 2012:57).

Table 4.43: Improved family and community practice

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	6	6%
Agree	81	77%
Strongly agree	13	12%
Missing data	2	2%
Total	**n=105**	**100%**

4.6.10 Question 53: Improved health system functioning (n = 103)

As indicated in Table 4.44, most of the participants 79 (75%) agreed and 16 (15%) strongly agreed that health system functioning improved, while five (5%) disagreed and three (3%) strongly disagreed with the statement. Two (2%) participants did not answer the question.

This is in line with an international review done in 2016 by the WHO and UNICEF, which reported that implementation success was often linked to stronger health systems (Fick, 2017:208).

Table 4.44: Improved health system functioning

	Frequency	Percentage
Strongly disagree	3	3%
Disagree	5	5%
Agree	79	75%
Strongly agree	16	15%
Missing data	2	2%
Total	**n=105**	**100%**

4.7 SUMMARY

Chapter 4 presented the interpretation and discussion of the study findings. The collected data aimed to answer the research question regarding the factors influencing the implementation of IMCI in the AMHU GT and 1 Military Hospital in Tshwane, South Africa.

The study objectives were explored to determine whether the following factors influenced the successful implementation of IMCI in the AMHU GT and 1 Military Hospital in Tshwane: demographic factors, organisational factors (structure), case management skills of staff (process) and IMCI benefits (outcomes).

In total, 105 participants completed the questionnaire; most of the participants were registered nurses. Most of the participants received two weeks' IMCI training while doing the PHC diploma. More than 50% of the participants indicated that they assess, treat and care for children every day. Many complained about not enough staff to practise IMCI properly, lack of supervisory support and shortage of wall charts, equipment and medicine.

Although SAMHS members are trained in IMCI and the majority believe that they are practising IMCI in the SAMHS, it seems that they are treating the symptoms and not the cause of the problems. Children are managed the same way as adults according to the SOAP approach and not according to the IMCI strategy. IMCI checklists are not utilised in the clinics and the hospital, and it can therefore be concluded that IMCI is not implemented in the SAMHS.

Chapter 5 presents the discussion, conclusion, recommendations and limitations of the study.

CHAPTER 5:
DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In Chapter 4, the data were interpreted and discussed according to the questions in the questionnaire. Chapter 5 summarises the results as described in Chapter 4. Recommendations are made, limitations are outlined, and an overall conclusion of the study is provided.

5.2 DISCUSSIONS

The aim of this study was to conduct a scientific investigation of the factors influencing the implementation of IMCI in AMHU GT and 1 Military Hospital in Tshwane as perceived by health care workers. Findings will be discussed according to the underneath objectives

The objectives of the study were to identify and describe the:

- organisational (structure) factors influencing the successful implementation of IMCI;
- case management skills (process) of health workers influencing the successful implementation of IMCI; and
- benefits (outcomes) when utilising the IMCI approach.

These objectives were met through a scientific evidence-based research study that was compared with similar studies in South Africa as well as internationally. Each objective will be discussed separately.

5.2.1 Objective 1: Organisational (structure) factors influencing the successful implementation of IMCI

Section B, questions 1 to 14 answered this objective. Discussed according to subheadings the participants identified the following organisational factors that hampered the successful implementation of IMCI:

5.2.1.1 Adequate numbers of IMCI trained staff is available

According to Question 4 (Figure 4.12), the majority of the participants 45 (43%) indicated that there is not enough IMCI-trained staff. This finding is similar to that of studies done in Limpopo and KZN by Horwood *et al*. (2009:62) and by Fick (2017:209).

5.2.1.2. Supervisory support or on-site mentoring is available to complement the theoretical training

Question 6 (Table 4.3) showed that 56 (53%) participants indicated that there is no supervision to bridge the gap between knowledge and practice. The finding from this study replicates that of Horwood *et al*. (2009:69), who also found no supervision present.

5.2.1.3 Availability of IMCI guidelines and wall charts

According to Question 7 (Table 4.4) 25 (24%) participants indicated that IMCI guidelines are not available and according to question 8 (Figure 4.14), many of the participants 54 (51%) indicated that wall charts are not available, which is similar to the study done by Adekanye and Odetola (2014:13), which found that IMCI implementation was affected by inadequate professional aids such as wall charts.

5.2.1.4 Essential medicine in stock

Although (according to Table 4.5, Question 9) most of the participants 77(73%) indicated that the essential medicine is available, 26 (25%) participants commented that very often they have to prescribe according to the EDL because some of the IMCI-specific medicine is not available in the clinics. Vhuromo and Davhana-Maselese (2009:60) report that participants in Limpopo also experienced a shortage of medicine.

5.2.1.5 The required equipment is available

Although the participants indicated that equipment is available (Question 11, Figure 4.16), it raises a concern that some participants 25 (24%) indicated that it is expected of them to utilise their own ear, nose and throat sets and stethoscopes when rendering after-hours services. Accordig to Vhuromo and Davhana-Maselese (2009:60) the participants in Limpopo also experienced a shortage of working equipment

5.2.1.6 Conclusion

The participants were mostly satisfied that organisational factors are assisting in the successfully implementation of the IMCI strategy; however, staff shortage, lack of supervision, unavailability of wall charts and the unavailability of the essential medicine in some clinics were identified as factors impeding its implementation.

5.2.2 Objective 2: Case management skills (process) of health workers influencing the successful implementation of IMCI

Section C, questions 15 to 43, answered this objective. The participants identified the following case management skills that influenced the successful implementation of IMCI:

5.2.2.1 Staff utilise the standardised IMCI checklists

According to Question 15 (Figure 4.17), most of the participants 58 (55%) indicated that the standardised IMCI checklists are not utilised by the staff. This is similar to a study in Tanzania where participants also indicated that there is not enough updated IMCI chart booklets and guidelines (Kiplagat et al., 2014:7). A few participants indicated that the IMCI checklist it is not captured by the administrative staff. This makes it very difficult when an SAMHS member sees the child during the follow-up consultation, as the previous information and specifics of treatment are not available. Some participants suggested that the military adjust the normal consultation form to include the IMCI checklist information. Of great concern is the comment by some of the participants that they are not allowed to assess and treat any children at 1 Military Hospital because it is a referral hospital where patients are only seen by specialists.

5.2.2.2 Conclusion

In general, the participants felt that IMCI improved their skills. In the case management category, the only factor that was identified to impact on the implementation of IMCI is the fact that the standardised IMCI checklist is not in use, and that, in the clinics where it was utilised, the capturing of information was a concern.

5.2.3 Objective 3: Benefits (outcomes) when utilising the IMCI approach

Section D, questions 44 to 53, answered this objective. In these questions most of the participants agreed that utilising the IMCI approach has benefits and no challenges were identified.

5.2.3.1 Improved quality of care

According to Figure 4.18, most of the participants 93 (88%) were of the opinion that the IMCI approach improved the quality of care. This is in line with an international review by the WHO and UNICEFF which reported global improved quality of care (Fick, 2017:209).

5.2.3.2 Improved case management skills of staff

Figure 4.19 showed that 94 (89%) of the participants agreed that the IMCI strategy improved their case management skills. Some remarked that they feel confident to assess and treat sick children after they received the IMCI training. This is similar than a study done in Tshwane

district. According to Mulaudzi (2015:89) healthcare workers in Tshwane showed improved ability to assess and treat children appropriately after they received IMCI training.

5.2.3.3 Ensure accurate identification of childhood illness on clinic level

The majority of participants 93 (88%), as indicated in table 4.37 believed that they were managing babies and children better at clinic level after the training. Some commented that they were always scared when they see children in the waiting room but that they now volunteer to be allocated to the IMCI work allocation. This is different from the findings of Mulaudzi (2015:92) who found that the IMCI classification of children who is referred to the hospital is often incorrect and incomplete.

5.2.3.4 Speeds up the referral of severely ill children

Question 47 (Table 4.38) revealed that 94 (89%) of the participants indicated that the IMCI approach speeds up the referral of severely ill children. One of the participants indicated that she knows exactly what treatment to give before referral. Another participant indicated that she received a note from one of the doctors congratulating her on her proper assessment and stat treatment of a child with malaria.

5.2.3.5 Ensure appropriate combined treatment of all major illnesses

The majority of the participants 94(89%) according to table 4.39, were of the opinion that they feel confident that they give appropriate combined treatment to all major illnesses. One of the Registered Nurses indicated that after she was exposed to IMCI training that she now tries to look deeper for the problem and not just do symptomatic treatment. Another Registered Nurse indicated that the space for other conditions/medical problems at the bottom of the form is too little and if they also can provide a small space for the classification and treatment. Mulaudzi (2015:89) as well as Horwood et al., (2009:62) reported improvement in combined treatment of major illnesses.

5.2.3.6 Strengthens the counselling of caregivers

Table 4.41 showed that although 95 (90%) of the participants believed that their counselling abilities improved after the course one of the medical practitioners remarked that “although IMCI was integrated in our training and we keep the principles in the back of our heads when assessing children, but we are not following the checklist to the point”. Another participant (clinical associate mentioned that “there is no time to do proper counselling”. This is similar in findings of Mulaudzi (2015:90) who found that caregivers were counselled in Tshwane district.

5.2.3.7 Budgetary benefits

Ninety two (87%) of the participants (see table 4.42) agreed that budgetary benefits do exist. Kosimbei et al., (2011:3) also found in Tanzania that the IMCI approach resulted in lower cost per child. One of the registered nurses felt that "the parents at times question the IMCI treatment and that they think the medicine is substandard because they did not receive what they expected to get" This is similar as studies done in the North West province where mothers demand certain medicine (Maleshane,2012:57).

5.2.3.8. Improved family and community practices

Again 94 (89%) of the participants (see table 4.43) were positive that IMCI improved family and community practises. This differ from the study that Maleshane, (2012:57) did in the North West province where mothers who did not received medicine, threatened to go to the media.

5.2.3.9 Conclusion

The data analysis shows that utilisation of the IMCI approach led to improvements in the quality of care and case management skills of the staff, accurate identification of childhood illnesses on clinic level, it speeds up the referral of severely ill children, it ensures appropriate combined treatment of all the major illnesses, under-five mortalities are reduced, it strengthens the counselling of caregivers, it has budgetary benefits, and it leads to improved family and community practice and improved health system functioning.

5.3 RECOMMENDATIONS

According to the findings discussed in Section 5.2, the researcher has certain recommendations on the factors influencing the implementation of IMCI in AMHU GT and 1 Military Hospital.

5.3.1 Training

Although SAMHS members are invited to attend courses and symposiums presented by the DOH, the slots for these members are most of the time limited to only a few members. It is therefore suggested that regular follow-up training, workshops, symposiums and refresher courses be offered by the SAMHS.

Although IMCI training is included in all the nursing courses, it is strongly recommended that additional IMCI courses and update courses be presented by the SAMHS Nursing College.

To ensure supervisory support, it is recommended that all supervisors who oversee clinics also attend IMCI training. Regular monitoring and evaluation of supervisory support should be reflected in monthly reports.

Training can be extended to other categories of healthcare workers, such as staff nurses and enrolled nurses, to enable these SAMHS members to assist in the relief of the workload in the clinics. Although treatment is prescribed by the professional staff, these staff categories can assist in the initial triage of under-five clients.

All registered nurses, Medical practitioners and clinical associates undergo IMCI training. The registered nurses should also be allowed to assess and treat children in 1 Military Hospital and not only the Medical practitioners who specialised in paediatrics.

The fact that 1 Military Hospital is a referral hospital compromises training in the Gauteng province, as there is therefore no training hospital in this province where the SAMHS Nursing College can place students for exposure and practise of clinical skills. It is not cost-effective for the SAMHS to place students at 2 Military Hospital in Cape Town and 3 Military Hospital in Bloemfontein, as the budget for allowances, transport and accommodation is not always available. 1 Military Hospital should consider becoming a training hospital again. Training opportunities in AMHU GT are very limited.

5.3.2 Resources

Although SAMHS members receive an IMCI booklet while doing the PHC course, it is recommended that the standardised IMCI checklist be utilised in all AMHU GT clinics and 1 Military Hospital by all members who attend to under-five children.

To enhance the implementation of IMCI, SAMHS should ensure that updated IMCI wall charts are available in each consulting room in every clinic.

For SAMHS members to function optimally, all the essential equipment should be standard in each consultation room and in working order, also for members offering after-hours services. In addition, IMCI-specific medicine should be available in all clinics.

Department of Health developed the Essential Medicine List (EML) App for quick access to treatment protocols. The EML App is regularly updated and should be in align with IMCI. This app is available for free on smartphones. Members should be encouraged to download the app if their phones allow it.

5.3.3 Capturing and safekeeping of legal records

SAMHS clinics should develop a system where IMCI checklists can be captured on computers. These documents should be treated like all other medical records that are kept for 30 years in terms of the DOD policy.

5.3.4 Future research

Possibilities for future research include an investigation into the extent to which IMCI is implemented in the SAMHS clinics in other provinces as well as at the 2 and 3 Military Hospitals. A systematic review of IMCI documents could also be conducted to determine whether the IMCI strategy is applied.

5.4 LIMITATIONS OF THE STUDY

Limitations are aspects of the study that decrease the generalisability of the findings (Gray *et al*., 2017:56). The limitation of this study is that the findings can only be generalised to units in the Gauteng province. The study results cannot be generalised to other provinces or services outside the SAMHS

5.5 OVERALL CONCLUSION

This study explored and described the factors influencing the implementation of IMCI in the AMHU in Gauteng and 1 Military Hospital in Tshwane. Chapter 5 presented the conclusions and recommendations based on the findings of the study.

The identified factors that influence the implementation of IMCI in this study were: not enough IMCI-trained staff, no supervisory support, unavailability of IMCI wall charts and not utilising standardised IMCI checklists. Due to the unavailability of IMCI medicine, SAMHS members are forced to utilise medicine according to the EML, which is not always the same as the IMCI chart booklet.

The results from this study suggest that clinical associates, registered nurses and medical practitioners in the AMHU GT as well as 1 Military Hospital are facing many of the same challenges that are faced in South Africa and other countries. Although these members are trying their best to implement the IMCI strategy, they are using a combination of the IMCI strategy principles and the PHC principles, which means that IMCI is not yet fully implemented.

The conceptual framework for this study, based on Donabedian's SPO model, was applied to guide this study. In the structure-related construct the researcher evaluated the availability of policies and guidelines, staffing, training, budget, supervisory support, medicine and supplies as well as the infrastructure. The utilisation of the IMCI guidelines and checklists, complete and accurate documentation, identification of problems and treatment were look in under the process construct. While the improved quality of care, improved case management skills, accurate identification of childhood illness and timely referrals, decreased mortality, effective use of the budget, improved of family and community practises and improved health system effectiveness were investigated in the outcome construct.

According to Donabedian certain structures and processes should be in place to ensure certain outcomes. In this study it was found that some of the structures and processes e.g. not enough trained staff, lack of supervisory support, and the unavailability of guidelines, essential medicine and equipment contributed to the fact that IMCI is not implemented in the SAMHS

The research aims, and objectives were reached at the completion of this study, as the researcher identified and described the factors that hampered the successful implementation of IMCI.

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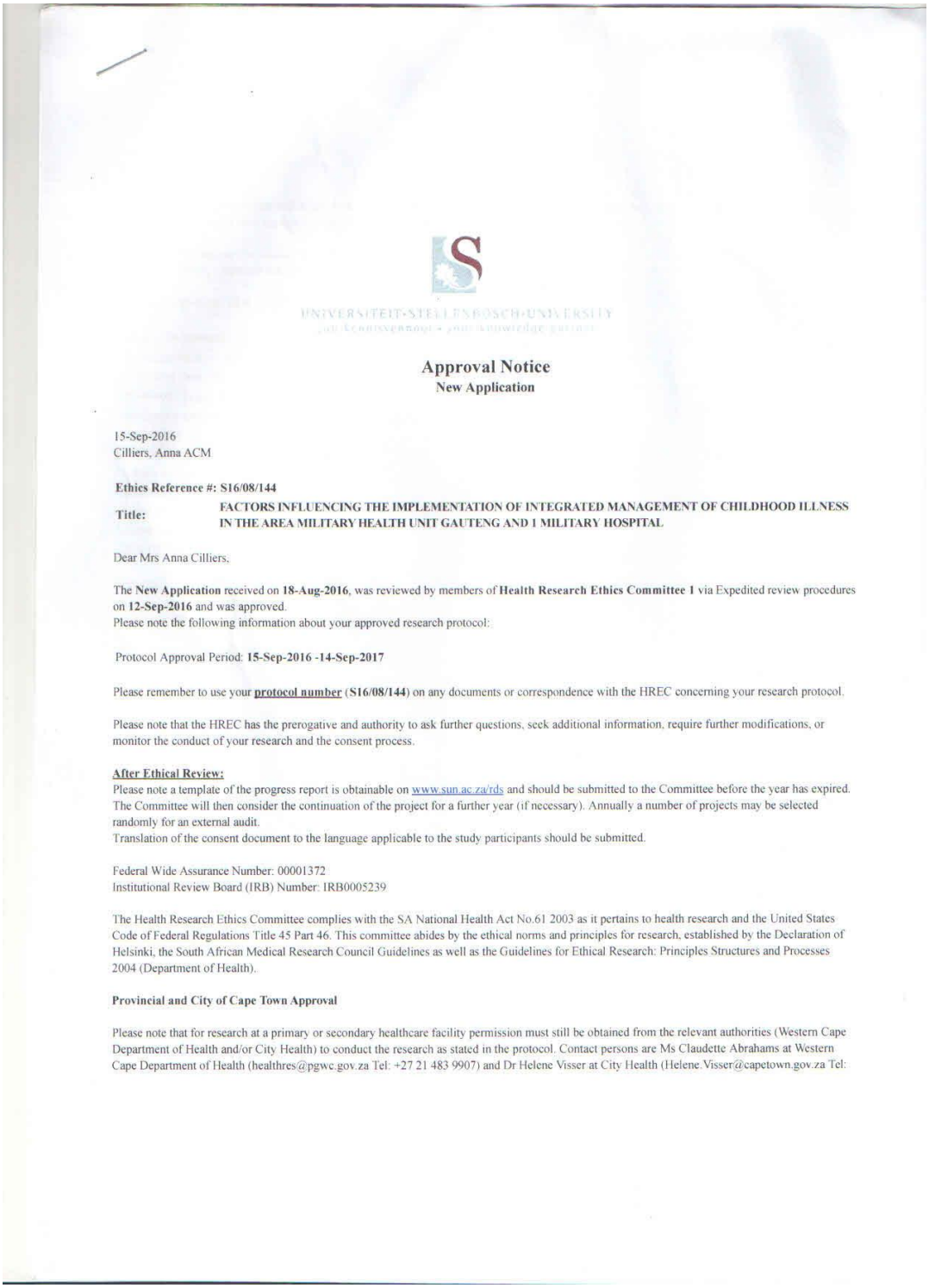
APPENDICES

APPENDIX 1: ETHICAL APPROVAL FROM STELLENBOSCH UNIVERSITY



UNIVERSITEIT·STELLENBOSCH·UNIVERSITY

Approval Notice
New Application

15-Sep-2016
Cilliers, Anna ACM

Ethics Reference #: S16/08/144

Title: **FACTORS INFLUENCING THE IMPLEMENTATION OF INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS IN THE AREA MILITARY HEALTH UNIT GAUTENG AND 1 MILITARY HOSPITAL**

Dear Mrs Anna Cilliers,

The **New Application** received on **18-Aug-2016**, was reviewed by members of **Health Research Ethics Committee 1** via Expedited review procedures on **12-Sep-2016** and was approved.
Please note the following information about your approved research protocol:

Protocol Approval Period: **15-Sep-2016 -14-Sep-2017**

Please remember to use your **protocol number** (**S16/08/144**) on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review:
Please note a template of the progress report is obtainable on www.sun.ac.za/rds and should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.
Translation of the consent document to the language applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001372
Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health (healthres@pgwc.gov.za Tel: +27 21 483 9907) and Dr Helene Visser at City Health (Helene.Visser@capetown.gov.za Tel:

APPENDIX 2: APPROVAL FROM DEFENCE INTELLIGENCE

RESTRICTED

Defence Intelligence
Department:
Defence
REPUBLIC OF SOUTH AFRICA

DI/DDS/R/202/3/7

Telephone: (012) 315-0216
Fax: (012) 326-3246
Enquiries: Brig Gen M. Sizani

Defence Intelligence
Private Bag X337
Pretoria
0001
25 November 2016

SAHMS Nursing College (Attention: Maj A.C.M. Cilliers)
Private Bag X 1022
Thaba Tshwane
0143

AUTHORITY TO CONDUCT RESEARCH IN THE DEPARTMENT OF DEFENCE (DOD): MAJ A.C.M. CILLIERS

1. Receipt of a request letter NURSCOL/R83752790PE with a Research Proposal and a University of Stellenborch Ethical Clearance Certificate is acknowledged.

2. Approval is hereby granted from a security perspective to Maj A.C.M. Cilliers to conduct research in the DOD on the topic entitled **"Factors Influencing the Implementation of Integrated Management of Childhood Illness in the Area Military Health Unit Gauteng and 1 Military Hospital"** as a prerequisite for an attainment of a Masters Degree (MCur in Nursing Education) under the auspices of the University of Stellenbosch as requested.

3. On completion the final research product must be submitted to Defence Intelligence (DI), Sub-Division Counter Intelligence (SDCI) for security scrutiny before it is released to any entity outside the DOD.

4. For your attention.

(G.S. SIZANI)
CHIEF DIRECTOR COUNTER INTELLIGENCE: MAJ GEN
KS/KS (Maj A.C.M. Cilliers)

Lefapha la Boiphemelo . Umnyango wezokuVikela . Kgoro ya Tshireletso . iSebe lezoKhuselo . Department of Defence . Muhasho wa Tsireledzo
UmNyango WezokuVikela . Ndzawulo ya swa Vusireheleri . Lehapha la Tshireletso . Departement van Verdediging . LiTiko leTekuvikela

RESTRICTED

APPENDIX 3: APPROVAL FROM 1 MILITARY HOSPITAL (SAMHS ETHICS COMMITTEE)

RESTRICTED

sa military health service
Department:
Defence
REPUBLIC OF SOUTH AFRICA

1MH/R/104/10/18

Enquiries: Brig Gen (Dr) N. P Maphaha
Telephone: (012) 314 0000/1
Fax: (012) 314 0757
Email: npmaphaha@2military.co.za

1 Military Hospital
Private Bag 1026
Thaba Tshwane
0143
01 December 2016

REQUEST TO CONDUCT RESEARCH AT 1 MILITARY HOSPITAL

1. Your letter NURSCOL/R/83752790PE dated 30 November 2016 refers

2. Approval to conduct any research in the DOD can only be given by Chief Defence Inteliigence (CDI). For all medically related research a recomemdation by the relevant Director is required.

3. 1 Miltary Hospital will assisst where necessary should the approval be given by CDI. All the necessary documents must be attached when submitting the request from CDI.

01/12/2016

(N. P. MAPHAHA)
GENERAL OFFICER COMMANDING 1 MILITARY HOSPITAL: BRIG GEN

Distr

For Action

Nursing College (Attention: Maj A. C. M. Cilliers)

For Info

D Nursing (Attention: L. Siwisa)

Internal

File: 1MH/R/104/10/18

APPENDIX 4: PARTICIPANT INFORMATION LEAFLET AND DECLARATION OF CONSENT BY PARTICIPANT AND INVESTIGATOR

TITLE OF THE RESEARCH PROJECT: Factors influencing the successful implementation of Integrated Management of Childhood Illness (IMCI) in the Area Military Health Unit Gauteng and 1 Military Hospital.

PRINCIPAL INVESTIGATOR: A.C.M. Cilliers

ADDRESS: SAMHS Nursing College

Thaba Tshwane

0143

CONTACT INFORMATION: Office: 012 6746347

Cell: 0829216151

E-mail: acmcilliers@lantic.net

Dear Participant

I am Christa Cilliers, a Nurse Educator at the South African Military Health Services (SAMHS) Nursing College, presenting the Diploma in Clinical Nursing Science, Health Assessment, Treatment and Care course and currently a student at Stellenbosch University doing research for my master's degree in nursing.

Please take some time to read the information presented here, as it explains the details of this project.

Your participation is entirely voluntary, and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to drop out of the study at any point, even if you agree to take part.

The study has been approved by the Health Research Ethics Committee of Stellenbosch University and the SAMHS Ethics Committee as well as Defence Intelligence. The study will be conducted according to accepted and applicable national and international ethical guidelines and principles, including those of the Declaration of Helinski, October 2008.

You are invited to take part in a research project entitled: “Factors influencing the successful implementation of Integrated Management of Childhood Illness in the Area Military Health Unit Gauteng and 1 Military Hospital”.

This study is about the factors influencing the successful implementation of Integrated Management of Childhood Illness in the South African Military Health Services, specifically in Gauteng Province, and you are one of the members who has been found suitable to take part in it.

The goal of the study is to investigate the factors influencing the implementation of IMCI in the SAMHS as well as to make relevant recommendations for the promotion and improvement of the use of the strategy. This could improve child health, with a reduction in child morbidity and mortality caused by the most common and preventable childhood illnesses.

There is no risk involved in taking part in the study, as confidentiality/privacy will be maintained. Your personal details will be kept anonymous and confidential, meaning your name will not be mentioned or be accessible by anyone. The information provided by you will only be accessible to the researcher and her study supervisor.

You will be requested to complete the questionnaire as honestly and truthfully as possible. It should not take more than 30 minutes to complete the questionnaire. Most of the questions require you to indicate with an ‘x’ in a block the most applicable statement.

Please feel free to ask the researcher any questions about any part of this project that you do not fully understand.

Your written consent is needed to take part in this study. If you are willing to participate in this study, please sign the attached Declaration of Consent and place it in the box available.

Yours sincerely

Christa Cilliers

Principal Investigator

Declaration by participant

By signing below, I _____ , agree to take part in a research study entitled Factors influencing the successful implementation of Integrated Management of Childhood Illness in the Area Military Health Unit Gauteng and 1 Military Hospital

I declare that:

- I have read the information in this consent form.
- I have had a chance to ask questions, and all my questions have been answered adequately. Should I have further questions or comments I may contact the principal investigator.
- I understand that taking part in this study is voluntary, and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I am aware that I will receive a signed and dated copy of the informed consent document.

Signed at (place) _____ on (date) _____

Signature of participant _____

Declaration by researcher

I (name) _____

Declare that:

- I explained the information in this document to _____.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.

Signed at (place) _____ on (date) _____

Signature of researcher _____

APPENDIX 5: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA

1. Age in years

21-30		31-40		41-50		51-60		›61	

2. Gender?

Female		Male	

3. Staff category?

Medical Officer		Professional Nurse		Clinical Associate	

4. Years of employment in the Military Health Unit Gauteng or 1 Military Hospital?

‹ than 5		5-10		11-15		›15	

5. Trained in Integrated management of Childhood Illness (IMCI)?

Yes		No	

6. IMCI training received?

2016		2015		2014		Before 2014	

7. Length of training?

2 weeks		1 week		‹3 days	

8. Follow-up training?

6 months after training		Annually		Never	

9. Frequency of assessing children under the age of five?

Daily		Weekly		Never	

10. Duration of an IMCI assessment?

‹ 10 minutes		10-20 minutes		30-40 minutes		50-60 minutes	

SECTION B: ORGANIZATIONAL FACTORS

		Strongly Disagree (1)	**Disagree (2)**	**Agree (3)**	**Strongly Agree (4)**
1	The policy of the employer mandates IMCI implementation.				
2	Staff numbers are conducive to IMCI implementation.				
3	The budget allows for IMCI training (e.g. new employees, update and refresher training).				
4	Adequate numbers of IMCI-trained staff are available.				
5	Training schedules are available (e.g. new employees, updates and refresher training).				
6	Supervisory support or on-site mentoring is				

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
	available to complement the theoretical training.				
7	IMCI guidelines (2014 version) are available.				
8	IMCI wall charts are visible.				
9	Essential medicines are in stock.				
10	Immunizations are available.				
11	The required equipment is available.				
12	Equipment is in working condition.				
13	Consumables/supplies are in stock.				
14	Clinic space is adequate for IMCI activities.				

SECTION C: CASE MANAGEMENT SKILLS

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
15	Staff utilise the standardised IMCI checklists (e.g. child aged 2 months up to five years).				
16	Personal information is noted on the IMCI checklist.				
17	The date of the visit is documented.				
18	Initial or Follow-up visit is marked (e.g. √).				

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
19	Vital signs are recorded (e.g. temperature, pulse and breathing)				
20	Weight is documented.				
21	The main problem is identified.				
22	Where indicated, additional problems are also identified.				
23	Danger signs are identified (e.g. vomit, lethargic etc.).				
24	Children with danger signs are immediately referred to a higher level of care.				
25	Children are checked for coughing or difficulty breathing.				
26	Children are assessed for diarrhoea.				
27	Children are monitored for signs of fever.				
28	Children are screened for ear problems.				
29	Children are monitored for sore throats.				
30	Children are screened for signs of malnutrition.				

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
31	Feeding problems are identified.				
32	Children are assessed for signs of anaemia.				
33	Children are screened for signs and symptoms of HIV infection.				
34	Staff checked for signs and symptoms of TB.				
35	Road to Health Booklets are checked for any missing immunizations.				
36	Where indicated immunizations are given on the day of the visit.				
37	Vitamin A is given on the day of the visit should it be required.				
38	Deworming is done on the day of the visit, should it be indicated.				
39	Follow-up dates are provided where necessary.				
40	Mothers/caregivers are informed to return immediately should it be necessary (e.g. danger signs).				
41	Health education (e.g. prevention and				

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
	promotion) is provided with each visit.				
42	Treatment is according to IMCI guidelines.				
43	Documentation of assessment and treatment is complete and accurate				

SECTION D: **IMCI BENEFITS**

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
44	Improved quality of care.				
45.	Improved case management skills of staff.				
46	Ensures accurate identification of childhood illnesses at clinic level.				
47	Speeds up the referral of severely ill children.				
48	Ensures appropriate combined treatment of all major illnesses.				
49	Reduces under five mortality				
50	Improved counselling ability of caregivers.				

		Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
51	Budgetary benefits as it costs up to six times less per child when correctly managed than with current care.				
52	Improves family and community practices.				
53	Improves health system functioning.				

SECTION E: RECOMMENDATIONS

Any suggestions to improve IMCI implementation?

THANK YOU FOR YOUR PARTICIPATION

APPENDIX 6: DECLARATIONS BY LANGUAGE AND TECHNICAL EDITORS

TAALSENTRUM
LANGUAGE CENTRE
IZIKO LEELWIMI

UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

3 October 2018

Ms Christa Cilliers
31 Hantam Road
Valhalla
Pretoria
0185

Dear Ms Cilliers

Editing of Thesis

The Stellenbosch University Language Centre hereby confirms that in September 2018 we comprehensively edited your thesis, titled **Factors influencing the successful implementation of integrated management of childhood illness in area military health units in Gauteng**, in fulfilment of the degree Master of Nursing Science in the Faculty of Medicine and Health Sciences at Stellenbosch University. MS Word's track changes function has been used and the edited thesis was delivered to you on 28 September 2018.

Please contact me should you have any queries.

Regards

Marguerite van der Waal
Head: Language Service
Stellenbosch University Language Centre
Tel: 021 808 3096
Fax: 021 808 2863
E-mail: mvdwaal@sun.ac.za

Lize Vorster Communication

To whom it may concern

This letter serves as confirmation that I, Lize Vorster, performed the technical formatting of Anna Christina Maria Cilliers's thesis entitled:

Factors influencing the implementation of integrated management of childhood illness in the area military health unit Gauteng and 1 Military Hospital in Tshwane Gauteng

Technical formatting entails complying with the Stellenbosch University's technical requirements for theses and dissertations, as presented in the Calendar Part 1 – General or where relevant, the requirements of the department.

Yours sincerely

Lize Vorster
Language Practitioner

Vygie street 9, Welgevonden Estate, Stellenbosch, 7600 * e-mail: lizevorster@gmail.com * cell: 082 856 8221